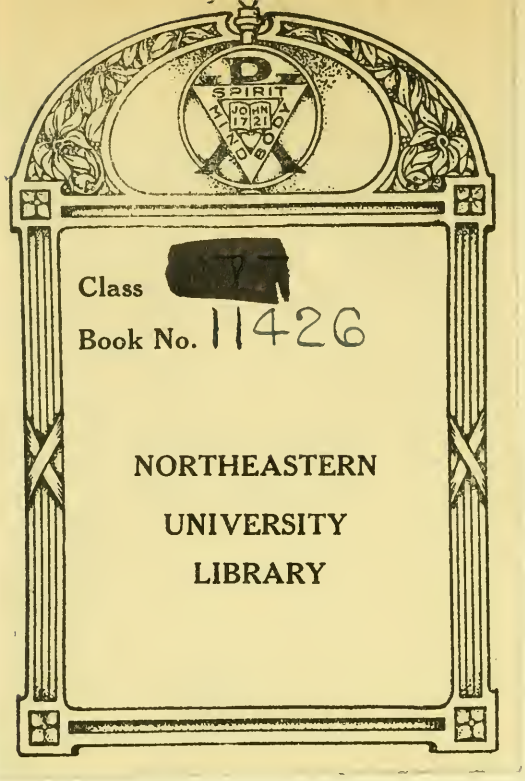
ARLINGTON MILLS

1865—1925



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ARLINGTON MILLS

1865–1925

Arlington Mills, 1865

Burned October, 1866

Arlington Mills

1865—1925

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THE ROMANCE OF WOOL

LIGHT MERCHANT VESSEL
XV CENTURY

I

THE ROMANCE OF WOOL

FEW of us stop to realize how directly our everyday lives are concerned with the romance of industry: first because daily routine so soon becomes commonplace, and again because the utilitarian seems so far removed from the romantic; yet, when we examine into the origin and manufacture of the various articles by which we are surrounded day by day, we find ourselves studying the entire progress of the human race. This article in common use is the result of an invention conceived by a human brain and perfected at the expense of a life of unselfish devotion and experiment; that one is the product of a far-away country, which could never have reached us except for unremitting efforts in solving the problems of production, machinery, and transportation; — and so one might go on, enumerating without end what comes to us as a result of the achievements of science or the expanding of empires.

Visitors at a Texas sheep ranch gaze with interest upon a great flock containing thousands of sheep. They are amazed at the broad expanse of grazing lands, at the efficiency and skill in developing the system of culture and handling, yet they fail to realize how close is the relationship which exists between that flock of sheep

and themselves, or the extent of romance which enters into the various processes before that relationship is tangibly expressed. The man standing there clad in a suit made of serge or cheviot, the woman attired in a smart *tailleur* of tricotine, poplin, or serge, give no thought to the fact that they are wearing the cast-off garments of the sheep!

But through what processes the fleece must pass before it becomes the fabric which adorns and protects their persons; what centuries of human endeavor are represented in the breeding and raising of the sheep themselves, of the transportation of the fleeces to the mills; what human ingenuity and investment of capital have been required to produce the necessary machines and to build the gigantic mills essential to translating the raw wool, by painstaking evolution, into the finished cloth!

Wool has played its part in the history of the world since the beginning. In the Book of Judges, when Gideon sought a sign from God that He would save Israel by his hand, it is recorded as follows:

> "'Behold, I will put a fleece of wool on the floor; and if the dew be on the fleece only, and it be dry upon all the earth beside, then shall I know that thou wilt save Israel by mine hand, as thou hast said.'
>
> "And it was so: for he rose up early on the morrow, and thrust the fleece together,

> and wringed the dew out of the fleece, a bowl full of water. And Gideon said unto God, 'Let not thine anger be hot against me, and I will speak but this once: let me prove, I pray thee, but this once with the fleece; let it now be dry only upon the fleece, and upon all the ground let there be dew.' And God did so that night: for it was dry upon the fleece only, and there was dew on all the ground."

From this it is evident that even at this early date the hygroscopic quality of wool was well known, and that to keep moisture out of it was considered a miracle, as it would be today.

Even among the prehistoric relics, woolen materials have survived the disintegrating processes of time, and while the Greeks and the Egyptians both claim the distinction of having made the first woolen cloth, sheep-raising was a leading industry among the Greeks and the Romans. Homer and Virgil abound in references to the woolen industry, and the adventures which Ulysses had with Polyphemus, the one-eyed shepherd, take us back to our school-days.

The story of wool was a twice-told tale when the shepherds were diverted from watching their flocks to gaze at the brilliant star shining over Bethlehem. Throughout the Dark Ages, during the period of the Renaissance, down to the be-

ginning of the Eighteenth Century, when cotton became a rival, wool was the chief staple in the world's commerce. In England today the Lord High Chancellor sits upon the "woolsack," which is intended, as Lipson says, "to put our judges in the House of Lords in mind of preserving and advancing the trade and manufactory of wool."

But the story of wool manufacture in America, in which the laborious efforts of the spinning wheels and looms in the Colonial households were replaced by machinery devised with such uncanny ingenuity that it seems not only to supplant human intelligence, but to surpass it, is less than a century old. And this story, full of industrial romance, can nowhere be better told than at the Arlington Mills where, during their sixty years of existence, the development in the manufacture of worsted cloth has been carried to its highest point.

There have been many who have sung of the ships that pushed their blunt noses around the world searching out China and the Indies for tea and spices. What more glorious, more breath-taking, more superb quest than this, of Argonauts who seek a fleece more precious than Jason's golden lure, a fleece which is transmuted by modern alchemy into warm and beautiful cloth, which you who read are wearing even now!

II

THE BEGINNINGS

1865–1869

ARMS OF THE "GUILD OF WOOL"
FLORENCE, ITALY

BY LUCA DELLA ROBBIA

II

THE BEGINNINGS (1865–1869)

MYTHOLOGY records that Minerva was born fully armed, but no such claim can be made regarding the birth of the wool manufacturing industry in the United States. Up to the time of the Revolution the only textile manufactures in America were of the household description. In Great Britain the factory system was developing rapidly, and in the late Eighteenth Century England believed herself ordained to manufacture the clothing of the civilized world. To accomplish this, the British Parliament enacted laws prohibiting the export of textile machinery, or any parts or models, under heavy penalties, so when the people of the United States, after the Revolution, turned their attention to national industrial development, they found themselves facing serious obstacles in the way of obtaining the necessary machines. The first cotton factory fitted with modern spinning machinery was established at Pawtucket, Rhode Island, in 1790. The equipment in this mill was built from plans brought to this country in the brain of Samuel Slater. The first American woolen mill operated by power was established at Byfield, Massachusetts, in 1784, and here the machinery installed was built in a similar man-

ner, from memory plans brought over from the mother country by the Scholfields.

With such determination in the face of obstacles, it was inevitable that the textile industry should eventually secure a firm foundation in the United States, but because of the handicaps it was natural that its development should be slow. Even up to the Civil War the industry found but a scant and precarious foothold. The efforts made by courageous manufacturers to secure the business given to foreign competitors were made in the face of the greatest discouragements. Throughout the period from 1845 to 1850, for instance, two of the favorite dress fabrics imported from France and enjoying a wide popularity in America, were mousseline delaines and cashmeres. English manufacturers, taking advantage of this demand, produced a fabric known as muslin delaine, in imitation of the French, but having a cotton instead of worsted warp, and of a somewhat coarser grade of wool for filling, capable of being sold at a much lower price. These fabrics promptly replaced in demand the more expensive French goods, and American manufacturers sought to take advantage of their popularity. The honor of being the pioneer in this important undertaking belongs to Mr. John Marland of Ballardvale, Massachusetts, grand-uncle of the present President of the Arlington Mills, who produced the first delaines, printed or dyed, that were made

in America. The prejudice against American-made fabrics, however, proved too strong for Mr. Marland's limited capital, so this ambitious undertaking failed.

For many years prior to the Civil War it was assumed that because of climatic and other conditions the spinning of yarn could not be conducted in the United States. In 1854 the English worsted manufacturers of Bradford presented to Congress, through the British ministry in Washington, a memorial urging the reduction of the then low *ad valorem* duty of 25% on worsteds, for the reason that they "do not come into competition with American goods." The American Congress actually granted this petition, and in 1857 reduced the duty to a point where it was impossible for American mills to begin the manufacture of worsteds.

The Arlington Woolen Mills, by which title the present Arlington Mills were known until 1875, were organized on February 20, 1865. Robert M. Bailey, of the firm of Robert M. Bailey & Co., in Boston, was the moving spirit in the organization. He had been successfully engaged in manufacturing colored shirting flannels in a mill in Laconia, New Hampshire. With the idea of extending his operations, he secured, in Lawrence, Massachusetts, a wooden building originally 135 feet in length, 35 feet wide, and three stories high. This had been built in 1834 by Abiel Stevens, who was then

engaged in making cases for Jacob Chickering, the celebrated pianoforte maker in Boston. This business continued until Mr. Stevens retired in 1856, when his sons succeeded him, using the building in the manufacture of fur and woolen hats. This later venture, however, proved unsuccessful, and for several years the building was unoccupied. In 1863 the Fabrilia Manufacturing Company undertook in this old factory to manufacture felted goods, but again the enterprise failed to prove successful, and during the following year the building was conveyed to the Berkeley Mills Corporation. When Mr. Bailey secured it, in 1865, he turned it over to the newly-formed Arlington Woolen Mills, the incorporators of which were Robert M. Bailey, Charles A. Lambard, Joseph Nickerson, and George C. Bosson. Mr. Bailey became the first President of the newly-formed Company, and Sumner Wheeler its first Treasurer.

Within a year after the organization of the Company the original building burned down, and it was promptly rebuilt, — again in wood. The original intention had been to use this mill for manufacturing colored shirting flannels, such as Mr. Bailey had been making in his Laconia mill, but Congress had passed a tariff law which went into operation in 1867 and gave an impetus to the worsted trade in America. It was decided to take advantage of the opportunity thus offered to turn the Arling-

Arlington Mills, 1867

Torn down in 1888

ton Woolen Mills into a worsted plant, with the result that some thirteen flyer frames, a comb, and some preparers were secured from the wreck of a worsted braid mill in Portsmouth, New Hampshire.

In this early plan of organization, Mr. Robert M. Bailey was President, Mr. James W. Bailey was Agent, Mr. Lorenzo Dow, Mr. Bailey's brother-in-law, was the chief weaver, and the boarding-house, which served as the "housing plan" of that period, was run by Mrs. Dow. The only member of the manufacturing organization who knew anything about the worsted business was a young man named Walker, who had learned his trade in England.

The Mills consumed about five hundred pounds of Canadian wool a day. This wool was sorted in an old wooden shed. One man trucked it in a wheelbarrow, scoured it in a trough in the dye-house, and returned it to be put into the works. The only power the Mills had was a small water turbine which, when the water was running at full head, would deliver perhaps 60 H.P. This, however, was sufficient to propel all the machinery.

The Mills themselves are situated on the Spicket River, which old chroniclers called the Spiggot, about midway between the Merrimac River and the line which separates Massachusetts from New Hampshire. The Spicket is a narrow and picturesque stream, rising in Salem,

New Hampshire, and meeting the Merrimac nearly opposite the mouth of the Shawsheen, in Andover. On its way through the town of Methuen there are three falls within the short distance of a mile, at two of which dams were built to make the power available. When the Arlington corporation was started, Lawrence was a town of less than 22,000 inhabitants, and from the station to the Mill the country was undeveloped, with practically no houses. It was a typical manufacturing town of the period, sharing, like other similar towns, in the vicissitudes of its chief industry.

The original Arlington fabrics included plaids, cotton warp and worsted weft, known at that time as worsted stuffs. The cotton warps were imported from David Stanfield, of Bradford, England.

With these modest beginnings, the present Arlington Mills started upon their career.

February 20, 1865, the date of the organization of the Arlington Woolen Mills, came at a vital moment in national history. It is interesting to note that at that time Frederic W. Lincoln, Jr., was Mayor of Boston, and John A. Andrew, Governor of Massachusetts. Three days before this date Charleston had surrendered to the Federal forces. In the month that followed Lee surrendered to Grant at Appomattox, Johnston yielded to Sherman, and Lincoln was assassinated.

The economic conditions throughout the country were completely demoralized; and during the ten years which followed their organization the Arlington Woolen Mills, like all other industrial organizations, were face to face with the vicissitudes of the Reconstruction Period, which was even more treacherous than the Readjustment Period following the World War, with which the present generation is more familiar.

It was at this time that Mr. William Whitman became connected with the organization, an association which, except for a few months, has extended over a period of fifty-eight years down to the present time. Mr. Whitman entered the employ of Robert M. Bailey & Co. in 1867, just at the time when Mr. Bailey was rebuilding the structure which had been burned down in 1866. His duties were supposed to be those of a clerk, but as a matter of fact he was called upon to act as treasurer of the newly-formed corporation, and to assist Mr. Walker in the manufacture. Thus it came about that when Mr. Walker left the employ of the Company, not long afterwards, Mr. Whitman became the practical man of the organization, designing the fabrics, and also having the responsibility of selling them.

At that time there were few people in the country who knew anything about the worsted business, and these few were employed at wages

far beyond the reach of the Arlington Woolen Mills. The employees, therefore, were green hands, with little skill or experience, and the quality of the goods themselves reflected the conditions which surrounded their manufacture. A high standard of perfection had already been attained by foreign manufacturers, and the best worsted fabrics worn in this country were almost all imported from Europe. It was natural that there should be a distinct prejudice against American-made goods. This situation was indeed a trying one for Mr. Whitman, then a young man but twenty-five years of age.

First attacked by fire, then handicapped by lack of financial resources, it remained for Nature to add a further crushing blow by the great drought of 1868, during which period the Mills were obliged to shut down for lack of water. To prevent a recurrence of this disaster the youthful Treasurer exercised his authority, and purchased a small Allen and Porter engine which he had seen exhibited in New York. This represented a definite constructive step in advance which relieved the manufacturing situation.

The financial position of the Mills, however, went from bad to worse. Nominally they had a capital of $240,000, but in reality there was practically no ready money. The owners seemed unable to secure additional capital. Every one was dissatisfied, and there was an absolute lack of coöperation and loyalty.

WILLIAM WHITMAN (1867-)

Treasurer — Apr. 10, 1867 - June 18, 1869
— Dec. 9, 1869 - Jan. 28, 1902
President — Jan. 28, 1902 - Feb. 25, 1913
Director — Aug. 2, 1873 -

Mr. Whitman was entirely out of sympathy with the methods he was forced to adopt to keep things going. Conditions were such that no young man of spirit could continue, and although he felt himself an integral part of the Arlington Woolen Mills, as a result of his strenuous labors during the previous two years, he recognized that there was no alternative, and so resigned as Treasurer in June, 1869. Mr. Benjamin S. Merrill, a retired clothing manufacturer, was elected Treasurer in his place.

This early period of the Arlington Mills, discouraging as it was, is really typical of the history of most of our industrial enterprises which date back to that era. The destructive struggle between President Johnson and the Congress had delayed the restoration of public confidence so greatly needed to produce national conditions which should approach normal. Capital hesitated to commit itself even to business organizations which merited support. The working class was demoralized by the greatly increased wages. At a time when production was sorely needed in national recovery, it was most difficult to secure. Few realize today how patriotic a part in the Reconstruction Period was played by those industrial organizations which braved such adverse conditions and courageously fought their way through to success.

III

GROWTH

1869–1888

MERCHANTS BARGAINING OVER
BALES OF CLOTH,
XVI CENTURY

III

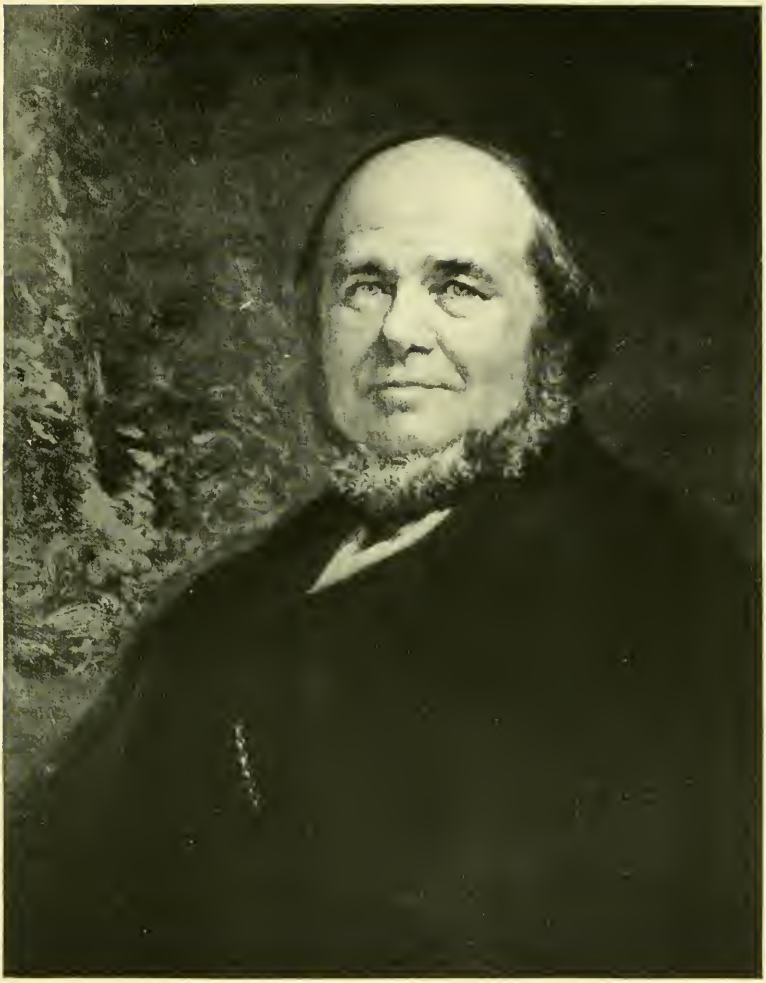
GROWTH (1869–1888)

DURING the next six months conditions at the Arlington Woolen Mills grew steadily worse, and in December, 1869, Mr. Joseph Nickerson, one of the original incorporators, and the most far-seeing and progressive stockholder in the Company, took matters into his own hands. He was a man of exceptional business capacity and of marked individuality of character. A native of Cape Cod, he turned naturally to a seafaring life, early rose to the command of a ship, and soon became an owner of ships. Later he embarked in business in Boston as a ship chandler, and afterwards became a manufacturer of cordage and cotton duck, which enterprise he carried on in connection with the management of ships. With the decline of American shipping, Captain Nickerson transferred his capital and enterprise to railroading, particularly in putting through the Atchison Railroad. His success in this new field was so marked that at the time of his death he was one of the wealthiest citizens of Boston. Under an exterior which sometimes seemed rough, Mr. Nickerson carried one of the kindest of hearts, and conspicuous among his virtues were his undaunted courage and his devoted loyalty to his friends. He was a man cast in a

large mould — one born to command. His was one of those strong and forcible natures upon which weaker ones lean in an emergency, and to whom leadership is naturally and voluntarily accorded.

Mr. Nickerson immediately undertook a complete reorganization of the Company. Realizing how completely the progress of the business had depended on Mr. Whitman's energies and ability, how much his perseverance had done to hold together the conflicting elements, and to inspire coöperation in an otherwise demoralized organization, how much his forcefulness had been responsible for keeping the Arlington products upon the market, Mr. Nickerson opened negotiations with the ex-Treasurer (who, in the meantime, had begun manufacturing on his own account in a small mill in Ashland, New Hampshire) to return to his original position. This Mr. Whitman consented to do under certain conditions, one of which was that the stockholders pay into the treasury the whole amount of capital stock, $240,000, to make the same good; and another, that he should have an absolutely free hand in the management. So again he assumed his important position, strengthened by the authority to translate his visions into action, and with a determination to overcome the still existing obstacles and the apparently never-ending complications.

Mr. Bailey continued as President of the



JOSEPH NICKERSON (1865-1880)

President — Jan. 31, 1871 - Feb. 29, 1880
Director — Feb. 16, 1865 - Feb. 29, 1880

Corporation until April 16, 1870, when he was succeeded by Mr. C. A. Lambard; but from the date of the reorganization Mr. Nickerson was the ruling spirit among the Arlington Directors, even prior to his actual election to the presidency, on January 31, 1871. The next few years tested the courage of even such indomitable characters as Mr. Nickerson and Mr. Whitman; for the textile industry in the United States passed through a period of unprecedented difficulties and discouragements. The calamities which had so nearly overtaken the Arlington Woolen Mills had overwhelmed many ambitious undertakings. It is significant that of the five other concerns which, with the Arlington Woolen Mills, exhibited American dress goods at the American Institute Exhibition of 1869, three subsequently failed.

In the midst of this chaos, the healthy state of prosperity which almost immediately followed the reorganization of the Arlington Woolen Mills in 1869 is particularly striking; but with two men of such caliber as Mr. Joseph Nickerson and Mr. William Whitman at the helm, working together in complete harmony, success and growth could be the only outcome. Their determination to win success, their far-sighted vision and judgment, had given to their company a basic strength upon which to build safely for the future. Because of the efforts of these men, the Arlington Woolen Mills had shown

themselves strong enough to weather the financial and economic storms, and came through with a character as distinct and individual as that of those sturdy pioneers who made its existence possible.

The management of the Arlington Mills from the beginning was prompt to recognize and meet the fickle and changing demands requiring the design of new fabrics, to install new textile machinery, and to introduce original processes of manufacture. Order had replaced confusion, employees had become skilled, problems of manufacture had been solved, resulting in a great improvement in the quality of the product.

When the Centennial Exhibition of 1876 was held, at Philadelphia, the Arlington Mills presented an exhibit of dress goods, the only such exhibit, with one exception, made by an American establishment. These products were frankly admired by foreign visitors, who realized for the first time that the United States was to become a formidable competitor in the textile world. The exhibit secured an award from the judges "for a very superior collection of black alpacas, brilliantines, figured mohairs, and Roubaix poplins; all first-class goods of their kind, very uniform in width, color, and finish, and being of recent introduction reflect great credit on the manufacturers." This represented a real achievement, accomplished as a result of perseverance and liberal expenditure of money in

carefully considered experiments, and the most precise technical skill.

The original capital stock of the Company ($150,000) became $200,000 in 1868. In 1868, this $200,000 was reduced by $40,000, and $80,000 additional cash paid in, making the capital stand at $240,000. In this reorganization of 1869, however, it has been recorded that Mr. Whitman insisted, as one of the conditions upon which he would return to the Company, that the stock representing this $240,000 be entirely wiped out, and an equal amount of actual cash paid in. A drastic example of financial surgery which saved the patient's life! By 1877 the growth of the business warranted the substantial increase to $500,000. The funds thus secured were utilized to finance the new buildings and the new machinery installed until, at this point, there were 508 looms in regular operation, producing 5,000,000 yards of cloth annually, and giving employment to 600 operatives.

The first dividend by the Corporation was declared in 1877, since when, with a single exception to which reference is made later, the Company has an unbroken dividend record of forty-eight years.

Mr. Joseph Nickerson died on February 29, 1880, and was succeeded as President by his son, Mr. Albert W. Nickerson. He had lived to see full justification of the firm stand he took in 1869, and to be convinced beyond peradven-

ture of the stability of the structure to the building of which he had contributed such moral and financial support. In spite of the personal loss suffered by the Corporation in the death of so important a member of its organization, and as a tangible evidence of the momentum his efforts had helped to establish, the continuing growth of the business warranted the authorization, on June 1, 1880, of another increase in the capitalization to $750,000. These increases, and those which follow, are milestones which mark the rapid development of the business.

Even at an early date it was foreseen that the original title of the "Arlington Woolen Mills" was too restricted, even in suggestion. To remove all limitations, the Massachusetts legislature was petitioned to change the name of the Corporation to "Arlington Mills," an Act to this effect being passed in 1875. In 1881 the significance of this change became apparent to the textile world. In the first goods made by the Arlington Mills there were many constructed with cotton warps. At first, these cotton yarns were all imported, as they were not made in the United States. Subsequently they were manufactured here by some of the cotton yarn mills, and the necessary supply was purchased from them; but in 1881 a cotton yarn mill was added to the Arlington plant to provide the necessary yarns and to make certain that the quality would be satisfactory. As time went on,

the Cotton Department, as it was called, developed to such an extent that it sold yarns to other outside users, and a large and satisfactory sales cotton yarn business resulted. The Arlington Mills were among the first in the United States to develop the art of mercerizing cotton yarn. They soon became leaders in this specialty, their product standing preëminent.

All this development, however, could not accomplish its ultimate achievements without adequate tariff protection to cover the difference in cost of production between this country and Europe. The law of 1867 did not contemplate the classes of dress goods that later came into vogue, and did not give sufficient protection to the newer fabrics. American manufacturers, paying wages twice as high as those of Great Britain and three times as high as those of the Continent, found almost overwhelming odds against them. Because of this the American manufacturers appealed to the Tariff Commission of 1882 for new rates of duty that should in reality be protective. The chief spokesman for the American industry on this occasion was Mr. William Whitman of the Arlington Mills. The Tariff Commission, while recommending a reduction of rates on other wool manufacturers, proposed to Congress a new clause covering all-wool merino dress goods in a way that promised to encourage their production here. But Congress did not accept the suggestion, and reduced

the duty as fixed by the Commission to a figure that proved altogether inadequate, leaving American manufacturers still face to face with a difficult problem. That the Arlington Mills were equal to its solution is evidenced by the continued growth of the business, which warranted another increase in its capital stock, September 4, 1882, to $1,000,000.

Surrounded as we are today with so many marvels of invention that we accept them as commonplace, it is interesting to note how great an event it was in 1882 when the first Edison electric lights were placed in the Mills. "This," says the historian of 1891, "was as early probably as in any New England mill, and the system of electric lighting has gradually extended to the entire establishment. It is related in the Mills that a few weeks after the electric lights were introduced some accident to the machinery compelled a brief return to the gas-jets. At once the operatives began to complain that they could not see to do their work, and that they could not be responsible for its character with the insufficient lighting of gas. So great are our advances that old methods seem to be wholly inadequate even before they are fairly dispensed with!

"The electricity is supplied by ten arc and three incandescent dynamos of the most modern patterns, and four additional arc dynamos are about to be added. At a moment's notice

thousands of brilliant lights drive the gathering twilight from every nook and corner. The fifty arc lights with which the system began are now extended to 524 arc lights, which number will soon be increased by 200 more. There are, in addition, over 1200 incandescent lights in the worsted mills and 550 in the cotton mills.

"The system of long distance telephone wires now connects the Boston office of the Arlington Mills with the mills themselves and with the office of the selling agents in New York; so that the Treasurer sitting at his desk can communicate instantly with either the Mill or the market. What else electricity has in store for the textile manufacturer we can only imagine as yet; but it is safe to predict that before another decade passes it will have wrought even greater changes than those just noted."

The chronicler's optimism has proved abundantly justified!

In 1887, a further increase in the capitalization of the Corporation, this time to $1,500,000, stands as a milestone to mark its ever-continuing growth in volume of business, and in its sphere of influence in the textile industry.

The wooden structure which Mr. Robert M. Bailey had built in 1867, to replace the original structure destroyed by fire so soon after its first occupancy by the Arlington Woolen Mills, was used until 1888, at which date it was torn down to make way for new buildings which were

being erected to keep pace with the expansion of the business. At that time the Mills were utilizing about 120 H.P. from two turbine wheels.

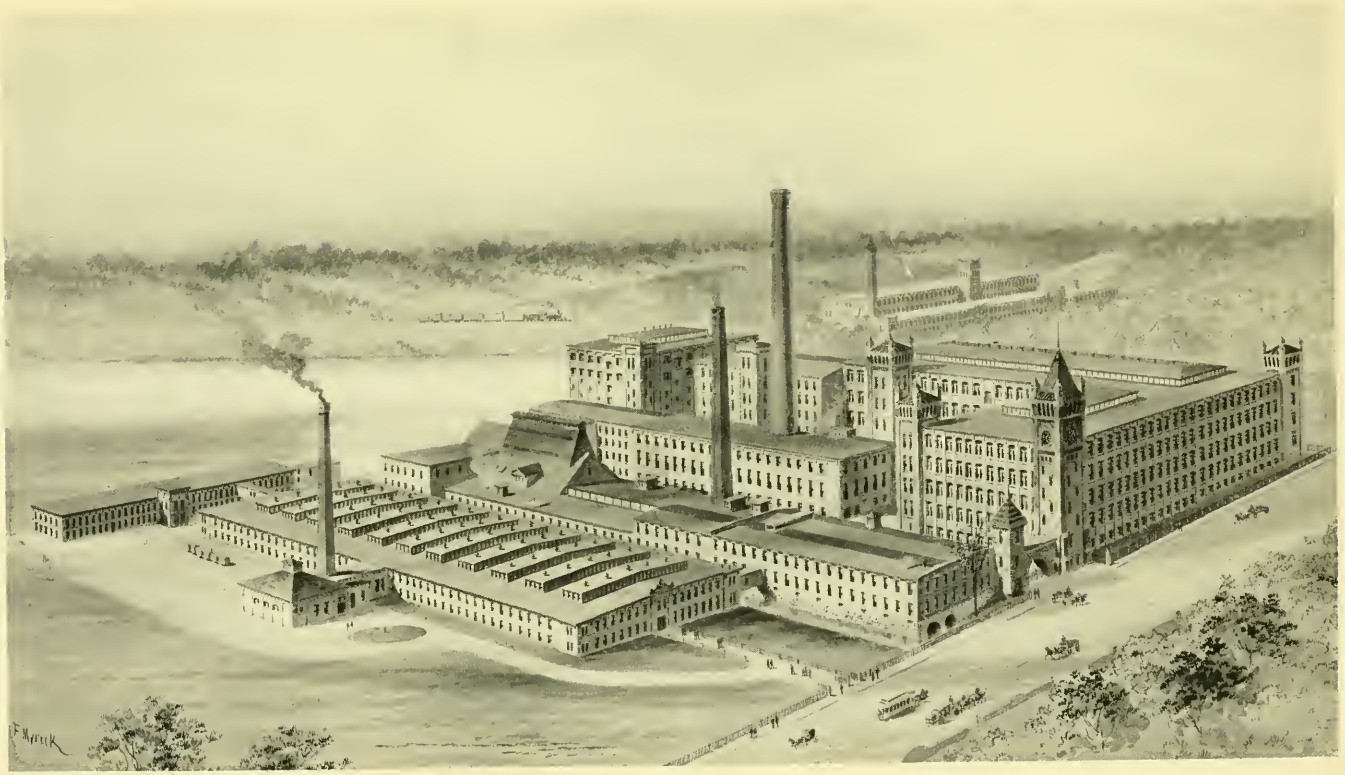
What might be called the modern history of the Arlington Mills begins at this point. They had left the experimental stage far behind them; they had established a large and dependable business; they were recognized as leaders in originating and developing new goods and new processes; their plant and equipment compared favorably with any competing mills; — yet of that plant and equipment of 1888 only the No. 1 Weave Room, one spinning mill, and a store-house are in use today!

IV

MATURITY

1888–1925

FINISHING CLOTH, XVI CENTURY



Arlington Mills, 1891

IV

MATURITY (1888–1925)

GROWTH leads to maturity, and healthy maturity continues to grow. In 1890 an increase in the capital stock of the Arlington Mills to $2,000,000 marked another financial milestone, and during the same year a new Spinning Mill was built, to enlarge the spinning facilities then found to be inadequate for the still growing demands.

By 1891 the Arlington Mills had become one of the largest establishments of its kind in the United States. At that time it employed about 2400 operatives; its weekly pay-roll was about $20,000; it had an equipment of 42 worsted combs and over 36,000 worsted spindles. The Mills at that time consumed 9,000,000 pounds of wool per year, and manufactured 54,000 pounds of worsted yarn each week. In addition to this, the Cotton Department ran 50,000 spindles, consuming about 5,000 bales of cotton annually. Compared with the plant of 1877 the increased capacity and production seemed tremendous, yet as a matter of fact the Arlington Mills had only just begun to grow!

Mr. Albert W. Nickerson died in May, 1893, and his brother, Mr. George A. Nickerson, succeeded him as President. This was a troublous year for business in general and particularly for

the wool manufacture. Grover Cleveland had been inaugurated President of the United States, with the Democrats in control of both Houses of Congress for the first time in thirty years. As soon as the results of the election were known, in 1892, — that the people had actually affirmed the declaration of the Democratic platform that a protective tariff was unconstitutional and that tariff should be for revenue only with no element of protection in it, — manufacturers began to curtail their operations, and to lay off operatives. The new administration, when once in power, undertook to make good the campaign promises of their Party, and signally failed. In June, 1893, President Cleveland announced that "there is general distrust and apprehension . . . that threatens to cripple our merchants, stop the wheels of manufactures . . ." In August the situation was so acute that a special session of Congress was convened. This was one of the few periods when the growth of the Arlington Mills was temporarily checked; but because of the foresight of the management, which had anticipated the results of the change in administration, they came through the trying months with less difficulty than many of their competitors.

By 1895 the position of Treasurer, which at that time combined the executive with the financial management of the Mills, proved too onerous to be handled by a single head, and Mr. Franklin W. Hobbs was elected Assistant

FRANKLIN W. HOBBS (1891-)

Asst. Treas. — Jan. 29, 1895 - Jan. 28, 1902
Treasurer — Jan. 28, 1902 - Feb. 25, 1913
President — Feb. 25, 1913 -
Director — Jan. 28, 1902 -

Treasurer, to relieve Mr. Whitman of the routine work of the Treasurer's office. This marks the first appearance among the Company's officers of the present President of the Arlington Mills.

Mr. Hobbs became associated with the Company in 1891. At that time Mr. Whitman was interested to secure definite information relative to wages and the cost of living in the United States, in England, in France, and in Germany. The statistics which had been gathered prior to that time were of little value, as they dealt only with the wages of the different occupations, comparing, for instance, the wages of the combers, spinners, and weavers in the various countries, but failing to take into account the number of each employed in a given mill. Mr. Hobbs' first assignment from the Arlington Mills was to secure satisfactory data.

Mr. Hobbs was abroad the greater part of the year 1891, going to the worsted manufacturing centers in England, France, and Belgium. Upon his return to Boston, Mr. Hobbs tabulated the results of this research, and the report was accepted as an authoritative statement, being based on actual conditions in the mills rather than being a mere compilation of statistics. This was submitted to the United States Senate, in 1892, in the Brief of the National Association of Wool Manufacturers against the revision of the tariff which was then under consideration by Congress.

In spite of efforts on the part of American manufacturers to prevent it, the duty on foreign wool was removed by Congress in 1893, and this so changed the status of the worsted industry as to amount almost to an economic revolution. It was obvious that American methods must eventually be adapted to the new conditions, and made to conform more closely to those which obtained in Europe. In order to acquire all the information possible upon the system of manufacture there prevailing, Mr. William Whitman went to England in 1894, and his observation convinced him that the commission combing and top business contained great future possibilities. Up to this time practically all the mills in America carried on every process of manufacture from the greasy wool to the finished goods. There were practically no mills which were solely spinning mills, for there was no opportunity to buy the tops — the raw materials of the spinners. If a manufacturer could purchase tops in the market, he could produce worsted goods without incurring this added expense for the combing mill machinery, and retain that much more capital for the balance of his business.

Mr. Whitman saw the advantages of the English system, which subdivided the different processes, one manufacturer combing wool and making tops, another buying his tops and spinning yarns, a third purchasing his yarns and

Top or Wool Combing Mill

Erected in 1896

manufacturing goods, while still another dyed and finished. When he returned to America, Mr. Whitman put his convictions into action, with the result that the present Top Mill was built in 1896. This was the first large mill erected in the United States for the sole purpose of making tops, and represented the establishment of a new American industry. This manufacture provided not only for the needs of the Arlington Mills themselves, but placed them in a position to do wool combing on commission.

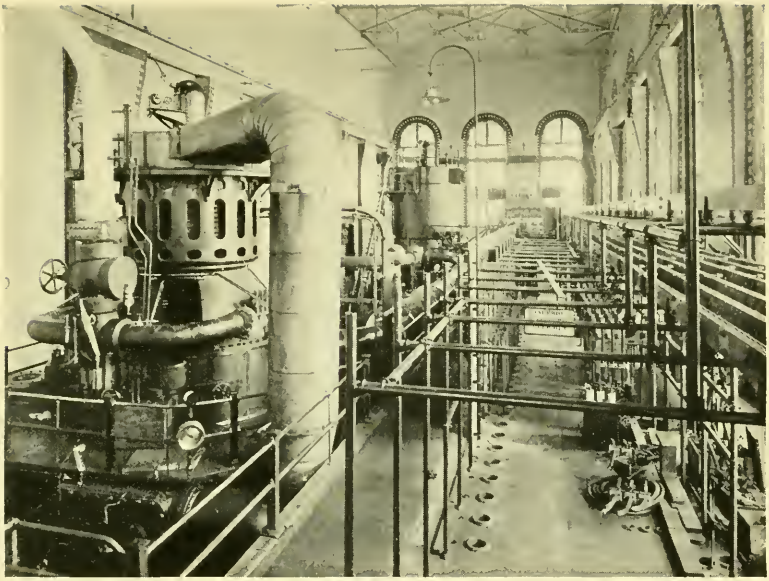
During this same year the capital stock was again increased, this time to $2,500,000, the extra funds thus secured being demanded for the new buildings and also for improvements required to keep the product and the processes up to the highest development known to the art.

The most important of these improvements was the installation of the Naphtha Solvent Process for degreasing wool. This was the invention of Mr. Emile Maertens, of Providence, Rhode Island. Chemists had long been familiar with the fact that the grease of wool could be entirely removed from the fiber by the use of some solvent material such as petroleum, naphtha, or bi-sulphide of carbon. Endless experiments had been made with these substances in search of a practical method of utilizing them for this purpose. It was not until Mr. Maertens undertook, at the instance of the Arlington Mills, to devise a solution of the problem, that a satis-

factory method was arrived at. After a protracted series of experiments, in the Spring of 1895 tests were made with about 100,000 pounds of wool, and the results were far beyond even the most sanguine expectations. The Arlington Mills purchased from Mr. Maertens the United States patents covering this process, and have controlled it ever since.

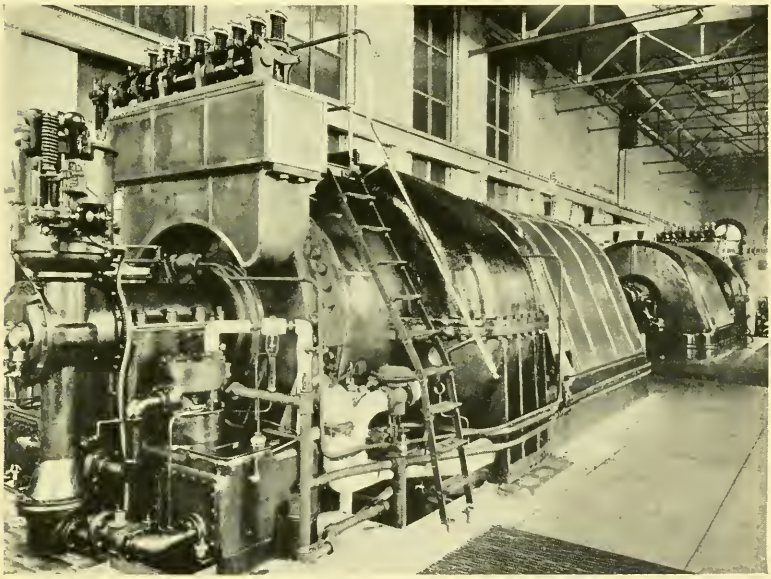
Mr. George A. Nickerson died in 1901, and Mr. Livingston Cushing acted as President *pro tem.* until the election of Mr. William Whitman to this position, on January 28, 1902. Mr. Franklin W. Hobbs, then Assistant Treasurer, was elected Treasurer of the Corporation, to fill the position left vacant by Mr. Whitman's election, and the office of Assistant Treasurer was abolished. Again the development of the business warranted additional capitalization, and it was raised in 1902 to $3,000,000, and again in 1905 to $5,000,000. This latest increase represented $1,000,000 additional paid-in capital, and the issuing of $1,000,000 as a stock dividend.

The success of the Solvent Process and the continuing increase in the commission combing and top business made it necessary to build a new two-story solvent plant in 1902-3. The experimental period in using the Solvent Process had now passed, and in the new plant such changes and improvements were made as were found desirable to perfect an invention which had proved itself a marked contribution to the



VERTICAL TURBINE ROOM

One five-thousand Kilowatt Generator
One two-thousand Kilowatt Generator



HORIZONTAL TURBINE ROOM

Two seventy-five hundred Kilowatt Generators

industry. A four-story office building was also erected in 1903, with the general offices of the Company on the second floor, the other three floors being occupied by the cloth department, where the goods are finally examined, packed, and shipped. In the basement of this building are the print shop, the hospital, the Doctor's office, and the tabulating department. An extensive wing was added at this time to the Top Mill.

And still the business of the Corporation grew! The Arlington Mills by this time had established standards by which the products of other mills were measured. Their improved processes made it possible for them to guarantee uniformity and high quality, which combined to stimulate the demand for Arlington goods. In 1906 still further important additions were made to the physical plant to provide the necessary facilities for production and to improve existing property. A splendid new Weave Room was erected, covering an area of more than three acres and filled with new looms; a new dye-house was added, one of the most complete and finest in the world, flooded with light and free from the steam which one ordinarily associates with any building devoted to this purpose. This year the construction was also started of a central power house which should eventually supply the power required for all the mills. The electric power is transmitted by cables, and delivered wherever

it is demanded in the different buildings. In the power plant are one 2000 K.W., one 5000 K.W., and two 7500 K.W. turbo generators, and the boilers required to furnish them with the necessary steam. In this central plant practically all of the power, aggregating 31,000 H.P. is generated, — a growth indeed from the 60 H.P. turbine of 1865, and the 120 H.P. of 1888! The Mill boiler house is fitted for the use of bituminous coal, which comes from Virginia or Pennsylvania by ships to Boston, or by rail from the mines direct onto the private tracks in the yards of the Arlington Mills, where there are ample storage facilities to enable the Mills at all times to maintain an adequate supply of coal.

With the continuing growth of the business came the demand for a corresponding increase in capitalization. In 1907 it was raised to $6,000,000, and in 1909 to $8,000,000, by cash payments for new stock issued at par.

By 1909 even these increased facilities for spinning proved inadequate. Another spinning mill was built to provide the additional worsted yarns required by the growth of the business. In this mill were placed over 60,000 additional spinning spindles and the necessary preparatory machinery. A year later (1910), the Arlington Mills secured control of a mill in North Adams, which was rebuilt and brought up to the Arlington standard. This is now known as the Hoosac Worsted Mills Department. It contains 236

ARLINGTON MILLS

HOOSAC WORSTED MILLS DEPARTMENT, 1925

North Adams, Mass.

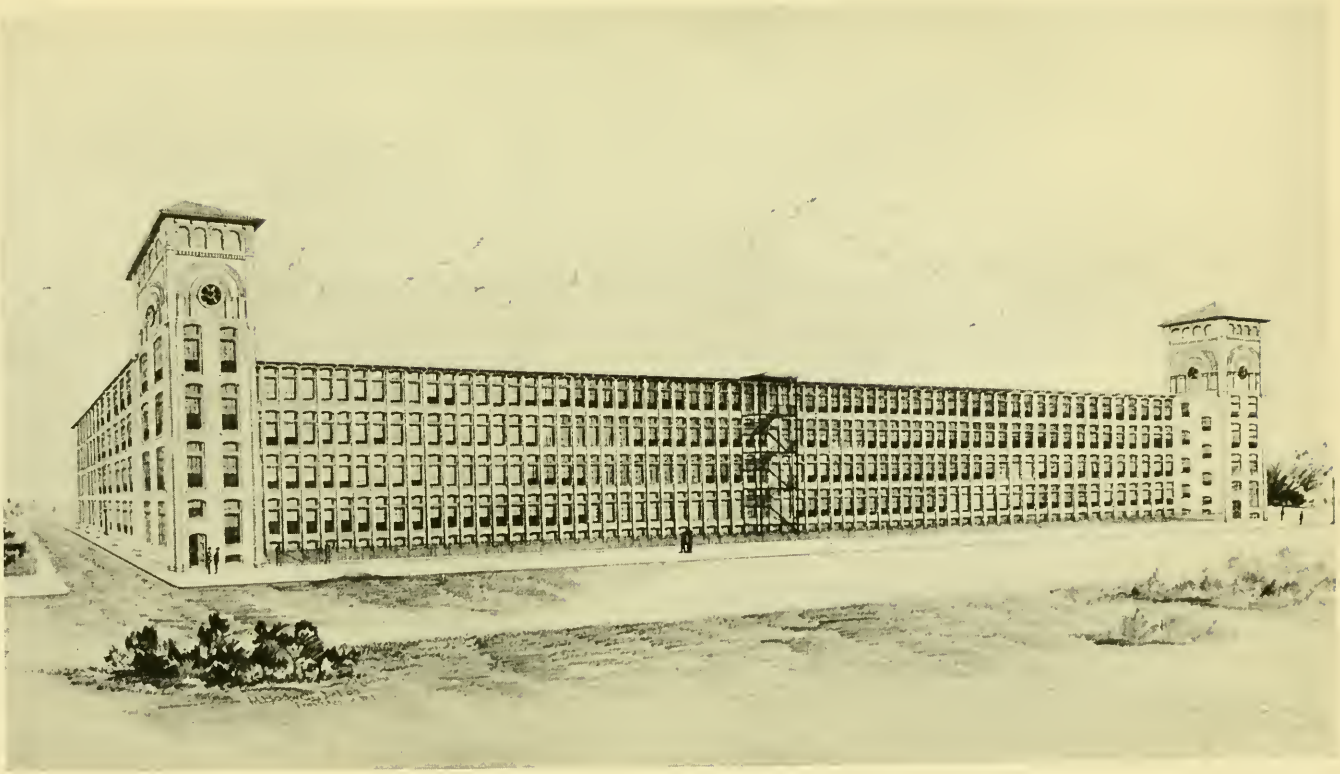
wide looms, all engaged in the manufacture of fabrics for men's wear. The yarns used are made exclusively in the Company's mills in Lawrence, and then are woven, dyed, and finished at North Adams. This Department covers some three acres of floor area, employs about 300 operatives, and produces nearly 70,000 yards of cloth each week.

At the annual meeting of the Corporation in 1913 a radical change was introduced in the management. Up to this time the Treasurer of the Company had been its chief executive officer, but it had become obvious, with the tremendous growth of the business, that it was impossible for the executive officer to include the general management and also the financial details of the Treasurer. The By-Laws of the Corporation were therefore changed to the extent that the President was made the chief executive officer of the Company, and was given the general direction and supervision of all its officers, including the Treasurer. The Mill Agent was also made responsible to the President instead of to the Treasurer, as had hitherto been the case. In August, 1914, the financial books of the Company, which had previously been kept partly in Lawrence and partly in Boston, were moved with the Treasurer's office to Lawrence, where they have since been kept. This change did away with much duplication, and brought all the records and accounts into one

office under one financial head. At this time, also, Mr. Franklin W. Hobbs was elected President of the Corporation to succeed Mr. William Whitman, and Mr. Albert H. Chamberlain became Treasurer.

Woodrow Wilson was inaugurated President of the United States on March 4, 1913. Again the Democratic Party undertook to introduce free trade ideas, with the usual results. All through the year 1913 the Arlington Mills suffered with other lines of business from the uncertainty which resulted from the legislative experiments introduced by the Party in power, and for the first and only time since the Corporation began to pay dividends in 1877 the usual semi-annual declaration was omitted on January 1, 1914. Business conditions continued to get worse throughout 1914, and except for the outbreak of the World War the country would have been face to face with probably the worst business panic in its history.

And then came the War! Few industrial organizations in the United States can boast the age which makes it possible to have experienced the effects of two great wars through which the country has passed. In another chapter the difficulties which the Arlington Mills faced in their early days as the aftermath of the Civil War have been recorded. In 1914, with all other business, they found themselves face to face with the greatest cataclysm the world has ever known.



Spinning Mill, No. 28

Erected in 1909

In the World War, however, the industrial plants were destined to play a most important part, and the Arlington Mills were able to perform a large and patriotic service through their close coöperation with the Government.

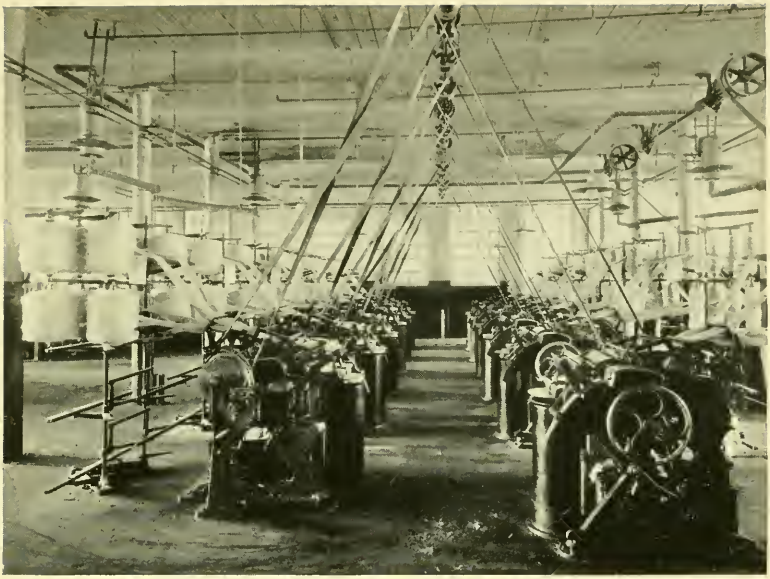
The Mills were placed in the highest priority class, as more than 75% of their machinery was devoted to government work. They not only served the Government in their own plants at Lawrence and North Adams, but also purchased large quantities of worsted and cotton yarns which were woven on the looms of many other mills outside the Arlington equipment, which were employed on commission to do the work. In this way, by utilizing their own production, by buying the production of other spinners and renting other mills, the Arlington Mills were enabled to give most important coöperation to the Government along lines where it was sorely needed.

Prior to the World War practically all of the worsted shirting flannel used by the United States Army was made of merino yarn, — that is to say, yarn made of wool and cotton blended together. Some years before the United States entered the War, the Arlington Mills pointed out to the Government the fact that if large quantities of flannel were needed there were not enough mills in the United States to supply the merino yarns which were called for in the specification by the Army for its shirting flannel. As

a substitute, the Arlington Mills produced a fabric made with a cotton warp and a worsted filling yarn. This was not accepted by the Government at that time, and the goods made from the regular merino yarn were continued in use. When the enormous demand for shirting flannel came, after the United States entered the War, the prediction made by the Arlington Mills was amply fulfilled, and the fabric which it produced with the cotton warp was then adopted as the standard for the Army, and that fabric is still the standard.

Up to this time, also, all of the cloths for uniforms used by the Army were meltons, made of woolen yarn in distinction from worsted. After the United States entered the War it was found impossible to supply the demands of the Government from the woolen mills of the country, and various worsted mills were asked to submit samples to a Board which was authorized to select the standard for worsted meltons. Here again the Arlington Mills' fabric was the one selected and adopted as the standard.

A radical step was taken by the management in 1917 when it decided to separate the cotton from the worsted department. By that time the cotton end of the business had become so large and so diversified, and the looms of the Arlington Mills then required so little yarn from this department, that a new Massachusetts corpora-



French Combs

Noble Combs

tion, called Acadia Mills, was formed to take over this part of the business. The capital stock was $2,000,000, and each stockholder of the Arlington Mills was given an opportunity to subscribe to the stock in the new corporation in proportion to his holdings in the old company. The Acadia Mills at that time took over all of the cotton yarn business of the Company, and has continued the business under the same general ownership and direction.

A new development in the commission combing business at the Arlington Mills led to the installation in September, 1919, of twenty-four French combs. These combs, which are used for short fiber wool, make available for worsted manufacture material which the Noble combs cannot handle, and are very like cotton combs. This equipment, which seemed so large at that time, has grown during the intervening years to sixty! It is less than a century since all the wool used in the world was prepared for the spinner with hand combs. From this primitive process to the combing machine is an advance as great as the ingenuity of man ever achieved at a single step. It is impossible to calculate how great has been the increase in productive capacity thus effected, while the effect in decreasing the cost of all worsted fabrics has been only less marked. Sixty years ago, when the Arlington Mills began operations, 20,000 wool combers worked up all the wool consumed by the English worsted

manufacture, and the industry hardly had a footing in any other country. Today it would be difficult to estimate the number of hand combers that would be required to prepare the wool which worsted manufactures consume each year by the aid of the machines which have now superseded man in this particular process.

One cannot pass through such an establishment as the Arlington Mills without a new appreciation of his personal debt to those inventive geniuses who perfected such processes and devised machinery capable of such performance; to those confident and courageous men who risked their competence in developing the industry; to the far-sighted executives who have overcome past and present obstacles; to the loyal, skilled workmen who have demonstrated that American worsted products are second to none in the world. A suit of clothes, a dress, is no longer commonplace: it is a symbol of adventure and achievement!

The question of water supply for the Mills had always been troublesome. In the springtime there were serious difficulties arising from freshets; whenever there was a drought, the effects of which usually were felt in September or October, the plant had to be shut down for several days at a time for lack of water for dyeing and finishing. The first difficulty was overcome by the purchase, in 1905, of flowage rights of Island Pond, one of the headwaters of

the Spicket River. A small and comparatively inexpensive dam was built just below Island Pond which gave control of that body of water. While this obviated the difficulty with freshets, the supply of water was not sufficient, as time went on, to prevent lost time in the dyeing department during dry periods.

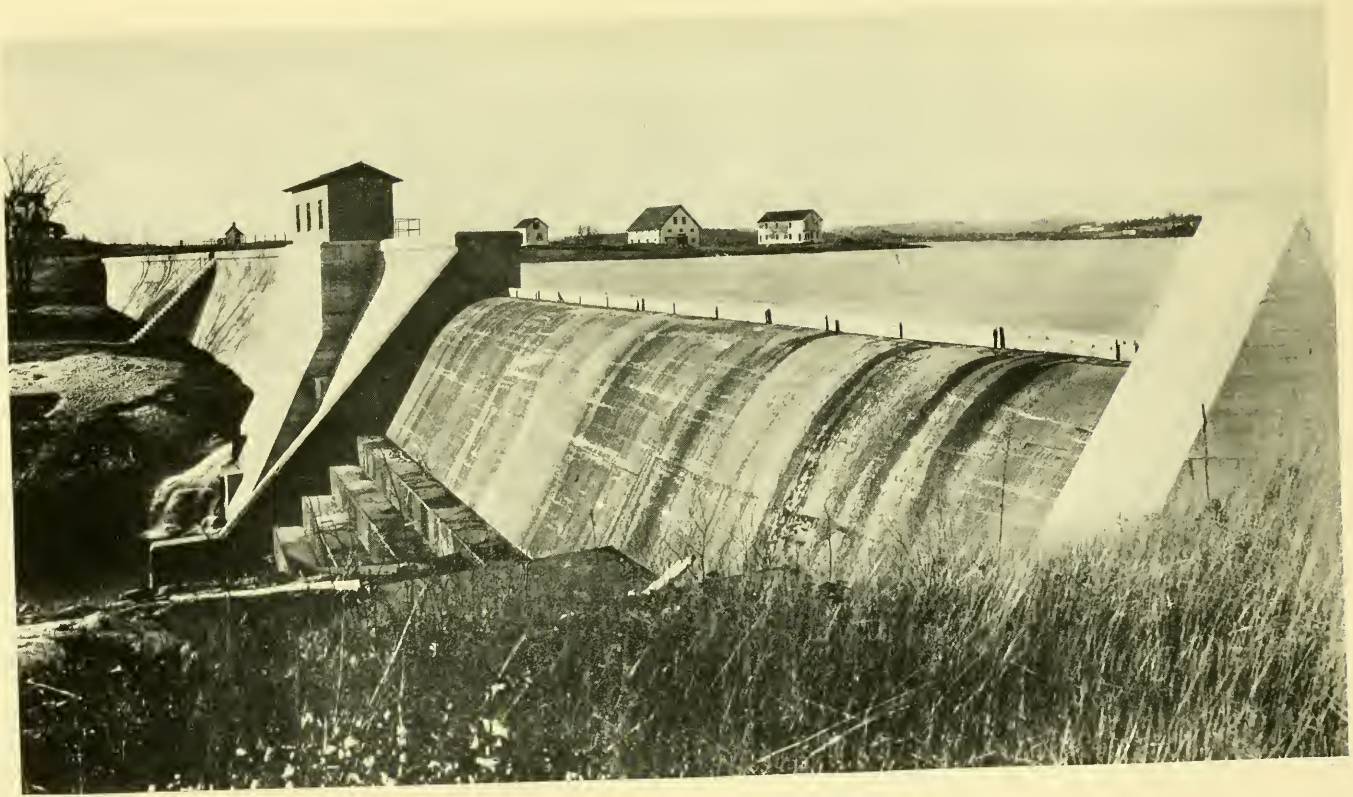
Mr. Franklin W. Hobbs, President of the Arlington Mills, became convinced that a proper supply of water must be available at all times, and he began to study the possible sources of supply from all points of the flowage into the Spicket River. Canobie Lake, controlled by the Methuen Company, was shared by the owners with the Arlington Mills, but this supply was distinctly limited. A small dam at Millville was constructed in 1918 which, when the Mill was running full, gave about four days' additional supply. Another small dam, the Hit Tit, was built at North Salem, New Hampshire, this same year; and, while this helped, it became evident that the matter of water supply must be gone into in a comprehensive way, which should give the Arlington Mills an unlimited supply for all time.

The plan finally adopted in 1919 was to construct an adequate reservoir on the site of the old Wheeler Mill, in North Salem, New Hampshire, about ten miles from the Mills. After negotiations which had covered a period of four or five years, rights were secured to all the

property above the lower dam for the distance of nearly two miles. The building of the reservoir itself could easily be made the subject for an entire chapter, — the difficulties of securing options on so many different parcels of property, the negotiations necessary to persuade the town of Salem to permit a rearrangement of its highways and a rebuilding of its roads, the demolition of a small woolen mill, an electric light plant, and over fifty dwelling houses, — all to permit the accomplishment of the engineering feat of transforming what had been a rural New Hampshire community into a reservoir holding 1,000,000,000 gallons of water. The dam was completed November 22, 1922, and the first water went over the top on May 3, 1923.

This Wheeler Reservoir, as it is called, doubled the total storage capacity of water for the Mills. It required a heavy investment, but proved a great success. In fact, the first two seasons after the completion of the new reservoir were two of the driest known, and except for the foresight in providing this additional water supply it would have been necessary to shut the Mills down during both of these summers for many days, with consequent loss of much-needed production during a busy season.

The latest milestone recording the financial success of the Arlington Mills is marked by the stock dividend declared in 1920, increasing the capital stock from $8,000,000 to $12,000,000.



Wheeler Reservoir and Dam

North Salem, N.H.

Capacity 1,000,000,000 gallons

In this chapter and those which precede has been drawn a picture showing the evolution of the Arlington Mills from their modest beginnings in the old pianoforte-case factory in 1865 through the sixty years of their existence to the present plant, the output of which can hardly be visualized by a mere comparison of figures. It is an interesting and significant fact that after the Mills were once under way in 1869, their history is one of steady growth. At various times in their career they have been forced to stand still because of economic conditions over which they had no control, but at no point have they slipped backwards, nor have they lost at any point the tremendous advantage which comes from the momentum produced by far-sighted policies, courageous investment, and indefatigable constructive performance. An organization such as the Arlington Mills is more than a commercial composite of manufacturing units. It is a monument to the underlying spirit of America, which, while not unmindful of the pitfalls or the hurdles, never allows itself to be diverted from its predetermined objective.

V

COÖPERATION

EXPERIMENTING WITH DYES
XVI CENTURY

V

COÖPERATION

THROUGHOUT the sixty years of their existence, the Arlington Mills have recognized that coöperation is an essential element of success, and this spirit has permeated the organization in all its branches. The Directors have always given the executives the heartiest coöperation and support, and, in turn, the executives have given to those associated with them similar support and have received the greatest possible coöperation in every department of the Mills. In addition to this, there has been unusual coöperation between those in charge of the Selling House and those directly in charge of the management of the Mills themselves. To this spirit of coöperation and coördination is due in a great measure the success that has been obtained; without it no great business enterprise can succeed.

The preceding pages record the development and perfection of processes which have revolutionized textile manufacture, the tremendous physical development of the Company's plant, and corresponding innovations in the details of management and distribution; — yet no one of these phases in the history of the Arlington Mills is more striking than the improved conditions which surround the operatives.

The Arlington Mills claim no credit for this coöperation. Today every corporation realizes that the well-being and morale of its operatives form an asset of inestimable value, and modern mill construction, bending every effort toward light, ventilation, and sanitation, the installation of safety appliances, the careful oversight of health, — once looked upon as expressions of paternalism and full of hidden motives, — are now recognized by management and employees alike as so obviously of mutual benefit that the balance is equally maintained. At the Arlington Mills, however, this reciprocal relation began earlier and has been carried farther than in most industrial plants. One of the first voluntary steps in this direction was taken in 1877, when Mr. Charles Wainwright, then Paymaster of the Company, pointed out to the Treasurer some of the evils resulting from the universal custom of paying off the employees once a month, such, for instance, as the encouragement which credit gives to unwise expenditure. On July 1, 1877, the experiment was tried of paying off every two weeks, and this system proved so satisfactory that by the end of the year weekly payments were substituted. As a matter of fact, it was largely through Mr. Wainwright's report of the success of this innovation that the State legislative committee recommended a compulsory law, which was passed in spite of strenuous opposition on the part of other manufacturers.

The hygienic conditions in the Arlington Mills are far better than those in any school-house in the State. The laws of Massachusetts require 300 cubic feet of air space per pupil in the school-rooms; the Arlington Mills provide 3,000 cubic feet per operative. The Massachusetts law requires 30 cubic feet of fresh air per minute in the school-rooms; the Arlington ventilating system supplies 50 cubic feet per operative, cooled in summer and warmed in winter. The location of every workbench and of every machine is considered in its relation to the light and in its effect upon the operatives' eyes; cleanliness and order become a matter of habit when a part of the day's routine; efforts to increase at all points and in every way each worker's personal asset to himself, — these and other methods of coöperation, which will be more fully elaborated, form a startling contrast with those imperfect conditions which, in spite of idyllic pictures in prose and poetry to the contrary, existed in those small, squalid huts where the textile industry had its beginnings.

To provide the employees with agreeable and proper environment is not enough, for physical fitness constitutes an essential asset. For some years prior to the definite action eventually taken by the Corporation, an insurance company had maintained a doctor in the Mills to give First Aid in case of slight injuries; but in 1917

the Arlington Mills felt that this phase of coöperation between management and operatives demanded more direct and personal participation. During that year, therefore, a Company nurse was installed and a Company doctor was engaged for part time. From this has developed, during the intervening years, an efficient Medical Department in charge of a resident physician and three registered nurses. The size of its clinic, which averages 1400 visits monthly, is but one of the indications of its success. Cases of industrial origin, whether due to accident or disease, receive immediate treatment, which is continued up to the reëstablishment of the employee at his work. Should some unusual case require consultation, or the service of a specialist, arrangements are at once made for supplementary advice. The mental attitude of the injured employee is considered as well as the injury. The cause of the accident is investigated, and steps are taken to avoid repetition. If the employee's physical condition is at fault, he is instructed how to remedy the deficiency. As soon as the injury permits, he is returned to work, graded as to his ability; after he regains his strength, he assumes his previous job.

For the cases of non-industrial origin, the Medical Department functions as a clearing house. Patients with minor ailments, such as small scratches, bruises, head colds, sore throats, which ordinarily would not receive the attention

The Mill Hospital

One Ward in the Hospital

of the family doctor, are treated. Those who have more serious ailments are diagnosed and sent to the family physician, or to the specialist best qualified to care for them. When so referred, they are followed up to see that the advice has been taken. With the superior facilities for diagnosis in this department, such as a most modern X-Ray plant, laboratory, and instruments of diagnostic precision, it may be easily seen what benefit accrues to the employees who otherwise could not afford these expensive procedures, and how helpful they are to the family physician, who otherwise would have to treat the patient without them. In all instances these findings are forwarded to the family physician, and coöperation is given in every possible manner.

The treatment of industrial and non-industrial cases by no means stops here. The larger and more profitable field into which this leads is in the prevention of these particular cases. The means of prevention are varied: medical education of employees is stimulated and raised; sanitation of their surroundings is made the best possible; the direct or indirect cause of accident or sickness is ascertained and eliminated.

Classes are held in the Mill hospital, in charge of the Mills' three registered nurses in coöperation with the American Red Cross, in Home Hygiene and in the care of the sick. The primary objects and advantages of this instruction are to

furnish elementary knowledge of the principles of personal hygiene and household sanitation; to instruct in the causes, symptoms, and prevention of communicable and other diseases; to give instruction to young girls and women in elementary nursing procedure, in order that they may care for members of their families who are suffering from minor ailments, and may intelligently carry out the instructions of a physician in the absence of a graduate nurse; and to teach initiative, especially in the use of appliances for the comfort and necessities of the sick when more expensive ones cannot be had.

Medical education of employees is promulgated by means of bulletin boards throughout the plant, on which different medical facts are called to their attention. First Aid Rooms are established at strategic points all over the Mills, and in these are stationed employees who have taken the First Aid Course which is given in the Medical Department. These stations, and those giving First Aid, are visited daily by one of the three graduate nurses, whose duty it is to maintain a high standard of treatment, and to sustain the interest of those doing the work.

Beyond all this, preventive medicine is practised by urging all employees to submit themselves to physical examinations, and efforts are made to demonstrate the benefits of having these annually. All employees who become sick dur-

ing the working day are seen by a graduate nurse or doctor, and any infectious disease is promptly detected and its spread prevented. Sanitary inspections of the whole plant are regularly made. Short talks on various medical subjects are given to Workers Safety Committees as well as to Overseers.

The principles of hygiene and comfort that govern the whole group of mills are further carried out by dressing rooms, facilities for warm meals, hygienic drinking fountains, and individual steel lockers for each employee's belongings.

Thus the broad field of preventive medicine is approached. The value of its practice is clearly evidenced by the reduction of lost time through sickness and accidents, through healthy employees at work, through increased interest of the employees in maintaining their health.

After providing for the hygiene and comfort of the employees and protecting their physical well-being, the Arlington Mills offer them every opportunity to become better citizens as well as better operatives. Life is a school-room, and the normal mind instinctively craves constructive exercise. This desire is encouraged in every way.

The specific efforts in the direction of education in the Mills are supervised by an Educational Committee, comprising all the superin-

tendents, three overseers, and the employment manager. The duties of this committee are to foster all activities that will stimulate and assist the operatives to avail themselves of the advantages which the community offers for the advancement of technical knowledge. They especially encourage the small percentage of foreign-born employees to learn or to increase their knowledge of English and Civics, in order to make themselves more efficient in their work and of greater value in the community. The operatives are urged to coöperate with existing health agencies for the purpose of advancing knowledge in the maintenance of health.

Lectures on the manufacturing of textiles are given at the Mills by the overseers of the various departments, and are intended to carry the student through the whole range of operations involved in the manufacture of worsted yarn and cloth, and to show how the various processes fit together, thus indicating the importance of each process toward the value of the finished product. These lectures, in addition to an explanation of the theory of process, include a practical demonstration in the manufacturing department under discussion; and besides increasing the range of the student's vision of his task, they stimulate in him an interest which leads to enrollment in the evening technical classes at the Lowell Textile Schools or the Lawrence Industrial School. To encourage this,

the Arlington Mills refund the tuition charges for all employees who satisfactorily complete a course of study in these excellent institutions.

The energies of the Educational Committee are strongly bent toward Americanization, in order to give to the foreign-born population and all others the fullest and freest opportunity to better their condition, to enlarge their measure of freedom, and to inculcate in them those ideals which are held by the American people. Noon-hour classes in English and Civics are given in the various departments by specially-trained teachers from the local public schools.

The Mill library contains, so far as they may be secured, all technical volumes bearing upon textile manufacture, and the technical magazines are always on file. These books may be borrowed and taken home by the employees for more intimate study.

Direct personal interest is further maintained in participation for mill improvements through employees' committees, whose suggestions and recommendations are viewed as a valuable part of the Mills' coöperative system. Suggestion boxes are placed throughout the Mills in which operatives are encouraged to place recommendations of any nature which may seem to them likely to improve products or conditions. Whatever is for the physical or mental benefit of the operatives is recognized by the management as of equal importance to the Company. The

Arlington Mills do not underestimate the asset represented by an army of 7500 loyal, interested operatives, 75 per cent. of whom are American citizens, and they express their appreciation by coöperation at every point.

Extraordinary efforts are made throughout the Mills to prevent accidents. Practically all the employees are members of the Safety Organization, from the By-Laws of which the following condensed quotation is made:

> In order that every employee of this Mill may be saved from unnecessary suffering from injuries, and to conserve his utmost earning power to himself and family, every member is pledged to coöperate in preventing accidents by being careful at all times, and by offering helpful suggestions on Safety.

Committees are appointed under the direction of a Safety Engineer, to make recommendations upon matters relating to Safety and Sanitation, and also to transmit to the employees suggestions relative to the betterment of conditions and the promulgation of the safety work in all sections of the plant. They also appoint a sub-committee for the purpose of making a regular monthly inspection of their department.

The Arlington Mills, by arrangement with one of the large life insurance companies, under

contract, have provided that all persons who enter the employ of the Company are automatically covered by life insurance (after one year's continuous service) on the basis of their period of service with the Corporation.[1] This insurance is furnished to the employee without expense, and no medical examination is required. It holds in force so long as the employee remains upon the Company's payroll. It constitutes no contract with the employee, and confers no legal rights upon him, except under the certificate. It does not change his right to leave when he pleases, or the right of the Arlington Mills to dismiss him.

This insurance is payable for death from any cause at any place at any time, and further provides that if employees are permanently or totally disabled before they reach sixty years of age they will be entitled to the full amount of their insurance while in the employ of the Arlington Mills, and during the continuance of this insurance. It does not in any way take the place of or interfere with the benefit provided by any workman's compensation laws, or any other insurance the employee may have, but is wholly in addition.

Personal effort on the part of the operatives of the Arlington Mills, if expressed only in technical or educational terms, would be incom-

[1] See Appendix, page 103.

plete. A healthy mind demands healthy relaxation, and this expression is found on the part of the employees in the many athletic activities, such as baseball, football, basketball, and bowling, which are encouraged in every way by the management. An Athletic Council is in control, and facilities are offered for every one to find that athletic exercise in competition or otherwise which may most appeal to him. The same principles of teamwork which become obvious in athletics make clear the importance of coöperation within the Mills, and develop personal friendships which add to the healthy expression of happy and well-rounded lives. The various teams compete with those representing other plants, and in all branches the Arlington teams have been able to hold their own.

For those operatives who enjoy music a Choral Society provides the opportunity of social fellowship in singing. An unusually well-trained Band, every member of which is an employee of the Company, gives a weekly concert in front of the Mills in Summer during the lunch hour. This Band enjoys a well-earned reputation for the proficiency of its individual members and for the excellence of its *ensemble*.

In recording the various methods by which coöperation between the Arlington management and the employees expresses itself, it becomes obvious that its success or failure can be meas-

SERVICE PINS

AWARDED BY

THE ARLINGTON MILLS

ured only by the spirit in which it is given and received on both sides. This is too intangible to reduce to words, but the response made by the operatives to the inauguration of service pins makes the management believe that its own good will is as genuinely reciprocated. The plan was adopted in 1917, and is an attempt to symbolize the spirit of loyalty existing not only between officials and employees, but of joint loyalty to the Arlington Mills. The officers of the Company are as proud to wear these decorations for service as are the privates in the ranks.

The first pin is given after five years' continuous service in the Company, and at the end of each succeeding five years up to a period of fifty years a new pin is awarded. In the center is placed the Company's trade-mark; above it, the number of years of service; and below, stars or jewels, each representing five years of service. The pins are made in different combinations of colors, so that the number of years any employee has been connected with the Company can be immediately distinguished.

At the present time there are more than two thousand who hold these pins, and over two hundred who have been in the employ of the Company for twenty years or longer. The Company is particularly proud of two members of its organization who hold the right to wear fifty-year pins.[1] While such a device cannot,

[1] See Appendix, page 98.

of course, create of itself a loyal spirit, it is of great value as a symbol of a spirit that already exists. That this spirit has played its part in placing the Arlington Mills where they are today, is undeniable. To the Arlington motto, "Skill Wins Favor," might properly be added the slogan, "Service Through Loyalty."

VI

THE ARLINGTON MILLS TODAY

1925

VI

THE ARLINGTON MILLS TODAY

(1925)

SUCCESS in any industrial enterprise consists of many elements: the vision which keeps the policy always in advance of economic conditions and demand; the ability to translate this vision into practical terms; the courage which, tempered by intelligence, stops at no expense which will improve process or production; knowledge of all details which enter into manufacturing and distribution; the closest coöperation and friendliest relations between management and employees; the ability to produce goods so standard as to create and hold their own market at a cost sufficiently below the price obtainable to make adequate return to capital invested. The record of the Arlington Mills is ample demonstration that no element of success is lacking.

The illustrations in this volume give the reader an idea of the physical aspect of the Mills, but no photographic reproductions can convey an adequate conception of the impressiveness of such a plant, or of the volume of its production as measured in pounds of yarn or yards of cloth.

One may visualize the fleet of trucks, loaded with great bales of raw wool, on its way to the Mills; but it is difficult for him to realize that these bales have required a modern magic carpet in their assembling: fleece wools from Ohio, New York, and Michigan; territory wools from states west of the Mississippi; merinos and cross-bred wools from Australia, New Zealand, and South America; lustrous wools from England; merino wools from the Cape of Good Hope; mohairs from the Angora goats of Asiatic Turkey; alpacas from the Andes and from the llamas of Peru, — all secured by agents stationed the world over to select and purchase the special material best adapted for each particular fabric.

One may be impressed by the photographs of the mills at Lawrence and at North Adams, yet it is difficult for him to realize that they cover a floor area of over fifty-eight acres. He may study the picture of the sorting room, in which there are nearly two hundred men, each standing in a window bay with a fleece on the bench in front of him, where he sorts out the various grades of wool into huge baskets, thus maintaining an absolute standard. One may look admiringly at the great kiers required by the Solvent Process without appreciating how marvelous a step forward they symbolize in the textile world: such, for instance, as the gain in the weight of clean fiber secured from a given amount of greasy wool as compared with the old

process of cleansing; the striking reduction in the amount of noil, due to the fact that none of the staple is broken, tangled, or matted in the washing process; the great saving in the cost of soaps and alkalis dispensed with; the saving of the by-products of the wool, hitherto lost; the wool fat and the carbonate of potash, which now figure among the marketable products of the Arlington Mills; the contribution to civilization accomplished by the doing away with the previous pollution of the streams.

The picture of the carding room may interest him, but no camera can convey an idea of the white, fluffy mass which yields itself to the card, producing a filmy, gossamer filament, which makes the spectator wonder what holds it together. In the sections of the combing room reproduced he will see the Noble and the French combs, but except in operation no one could comprehend their uncanny ingenuity, which seems to surpass human understanding. In the combing machine, the power of the capitalist has been exemplified no less than the genius of the inventors, who spent perhaps ten million dollars in perfecting the three distinct types. It cost more to accomplish, and yielded more to its designers when completed, than any other machine of the century, and it is the most perfect piece of mechanism to be found in all the range of the textile industries. The first use of the machine in this country was in 1854, and the

whole enormous industry of mechanical worsted combing, as now conducted, has been built up since then. It is only within a short time that American manufacturers of textile machinery have undertaken to build combing machines.

A reproduction of the drawing room would show the machinery, but it would require actual observation to appreciate the operation whereby the wool sliver is brought down, through various processes, to the size which can be spun on the spinning frame. No picture of the spinning room can possibly convey the sense of infinite motion or the perfection of the machinery, which possesses what seems to be almost human comprehension, nor can such a fragment even suggest the multitude of 132,000 spindles required for the Arlington operations. A portion of a weaving room may be shown, but what picture can convey the idea of nearly 2600 looms producing over 300,000 yards of cloth per week! Sections of the finishing and dyeing departments may be reproduced, yet they can but suggest the unusual area of the rooms themselves, with saw-tooth glass roofs and tall windows for maximum light. These, and the other illustrations, can give but a fragmentary idea of the many processes required to accomplish the almost magical transmutation of the fleece into finished cloth.

The Arlington looms in number alone would make the weaving unit one of the very great industrial plants of the world, but beyond this

ARLINGTON
MILLS
1925

PLANT AT
LAWRENCE
MASS.

matter of capacity is the variety of equipment and the modern nature of all the installations. They are of every kind, useful for every purpose in cloth making, and represent all the widths serviceable for worsted cloth. Looms of maximum width are so numerous that they alone exceed the number of all looms in many large American and European weaving mills.

An important department of the Mills is their very complete Chemical Laboratory, which has grown from modest beginnings in 1879 to its present proportions and efficiency. The man on the street does not realize the part played by a laboratory in a modern textile organization, or how much the quality of the finished product depends upon its proper functioning in relation to the manufacturing departments: how the water must be kept under observation; that the lubricating oils for machinery, the vegetable or olive oils for the wool fibers, must be watched and tested; that the animal oils and tallow require inspection to ensure quality and uniformity in the soaps employed; that solutions of various kinds are demanded for hospital work or in plant control; that the proper amount of oil to be used in the stock, and the sizing of the yarn must be carefully determined and maintained to secure uniformity.

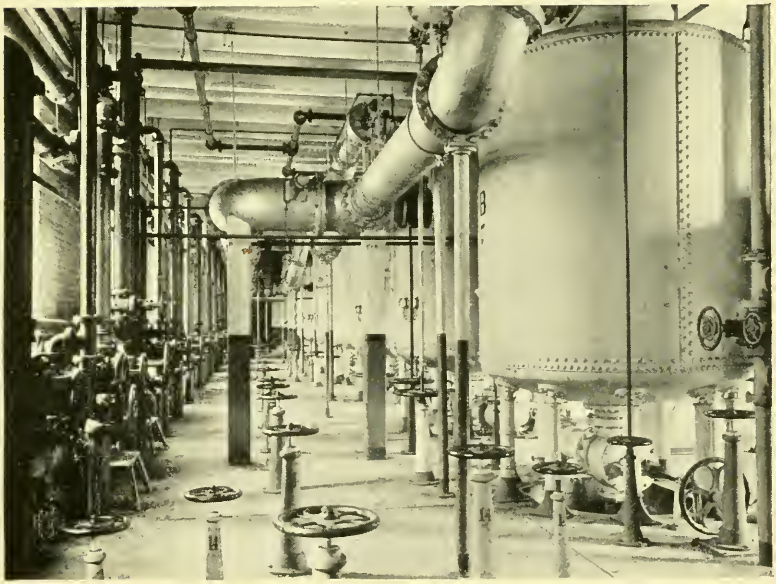
These are a few of the responsibilities placed upon a mill laboratory. Beyond this, is the important element of the dyes. With the world

passing through a transition period in dyes, it is vitally essential that a mill should have the earliest possible advantage of every new development, that its knowledge should be absolute as to color-destroying influences, and that the fastness of the dyeing should be definitely assured. The varying effects of dyes upon different fabrics must be determined, and special shades must be absolutely matched and guaranteed.

All this and more is done at the Arlington laboratory by the Chemist and his five assistants, by means of highly developed apparatus and with the aid of an extensive technical library. Instead of being dependent upon analyses rendered by chemical and dyestuff dealers, the Arlington Mills are in a position to protect the standard of their product by constant daily oversight of materials purchased, and of chemical processes involved in manufacture.

Certain comparative figures showing the growth of the Arlington Mills in production have already been given in this chapter, but nothing perhaps is more indicative than to compare the daily consumption in 1867 of 500 pounds of Canadian wool with the present production of the Top Mill, which requires the fleeces of 33,000 sheep every twenty-four hours, aggregating 1,500,000 pounds per week! It has not been quantity, however, that has given the Mills

Wool Sorting Room



Kiers in Solvent Plant

Capacity over 1,500,000 lbs. of wool weekly

their reputation, but rather the quality which the management demands in all its finished products.

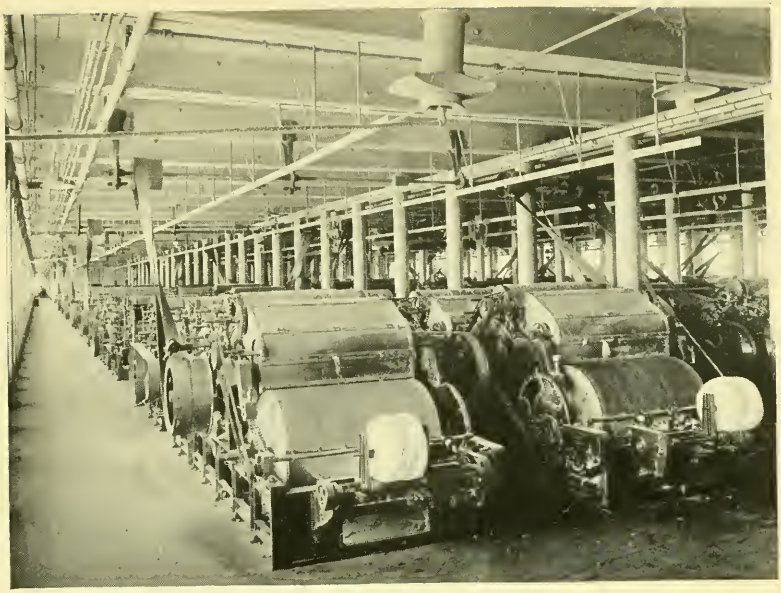
The first goods made by the Arlington Mills were yarn-dyed fabrics for women's wear, which were known in the trade at that time as "Bradford stuffs" and "worsted stuffs." These products were made of combed cotton yarns in the warp, and of long, lustrous, combed worsted yarns in the filling or weft. The warp yarns were, for the most part, imported from England in the gray or natural condition, although some were imported in the dyed and printed state. These cotton yarns were imported because they could not be secured from domestic manufacturers in suitable qualities. The gray yarns were bleached or colored before they were woven. The wools for the weft were imported from Canada and England, and were commercially known as "combing wools of English blood," and were dyed in the slubbing before being spun into yarns. The fabrics, both in solid colors and plaided, striped and printed, were made in two widths — one from 22–23 inches and the other 27 inches. These fabrics were sold to the dry goods' jobbers, and through them to their customers, who had the cloth made into dresses in the home, or by dressmakers, as ready-to-wear garments were then practically unknown.

The prejudice at that time against fabrics

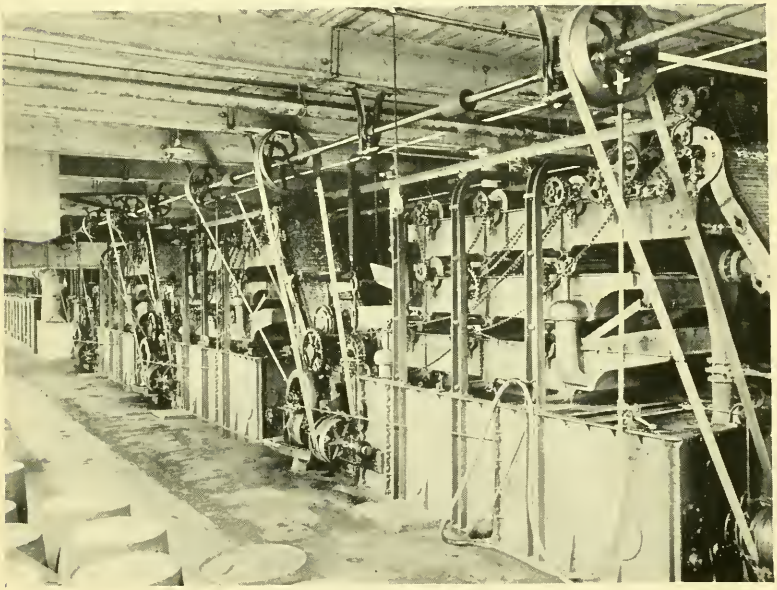
made in the United States was so strong that the jobbers had them marked with their own special tickets to conceal their origin and to prevent identification by the retailer, and many domestic fabrics were sold as foreign made and imported goods.

Prejudice, however, was not the only obstacle the worsted manufacturers, in the industry's early days in this country, had to meet and overcome. The foreign manufacturers had already attained excellent standards in their products, and they had in their mills the skilled labor required to produce them. To meet the competition of rivals thus equipped and advanced in the art of manufacture was no easy task, even had conditions been more favorable. With few men in the country experienced in the worsted business, the early American manufacturers were also handicapped by a lack of adequate protection against foreign competition.

In 1872, the Arlington Mills successfully undertook to manufacture a class of fabrics which had previously been imported in large quantities from England, and were commercially known as "alpaca, mohair, lusters, and brilliantines." These were extensively used in different qualities and varying values for women's dresses, linings for men's clothing, and for summer and office coats for men. At that time black alpaca dresses were worn by American women as their best dresses, and were much



Cards



Washing Machines

in fashion and in general use. These fabrics were made with dyed cotton warp yarns and the weft of alpaca fabrics from the hair of the Alpaca; of the mohair fabrics from the hair of the Angora goat; while the weft of the luster fabrics, which formed the largest part of the business, was produced from the long and lustrous wools of English blood.

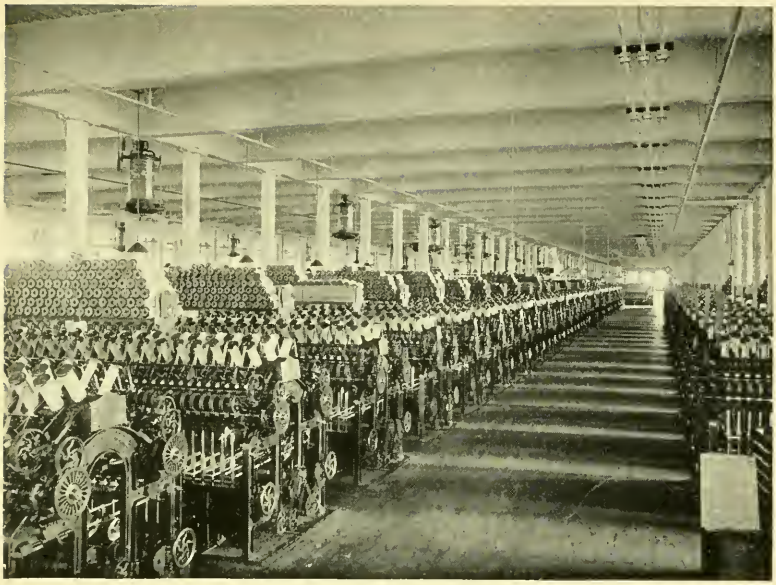
After having been in vogue for many years, the popularity of these highly finished, lustrous cotton-warp goods began to wane in favor of the finer, softer, and more delicate all-wool fabrics that were imported chiefly from France.

When the tariff act of 1857 was enacted, its framers did not contemplate the possibility that such fabrics would be imported into the United States. By that law there was imposed on all-wool dress goods relatively lower duties than on fabrics of cotton warps. On account of this distinction, Mr. William Whitman, then Treasurer of the Arlington Mills, and representing the National Association of Wool Manufacturers, appealed, on behalf of American manufacturers, to the United States Tariff Commission of 1882 for new and higher duties on the imports of those light-weight, all-wool dress goods, which should place them on a parity with the highest duties imposed on other all-wool fabrics. The Tariff Commission acted favorably upon this suggestion, but Congress later rejected the recommendation and reduced the suggested rates to a point

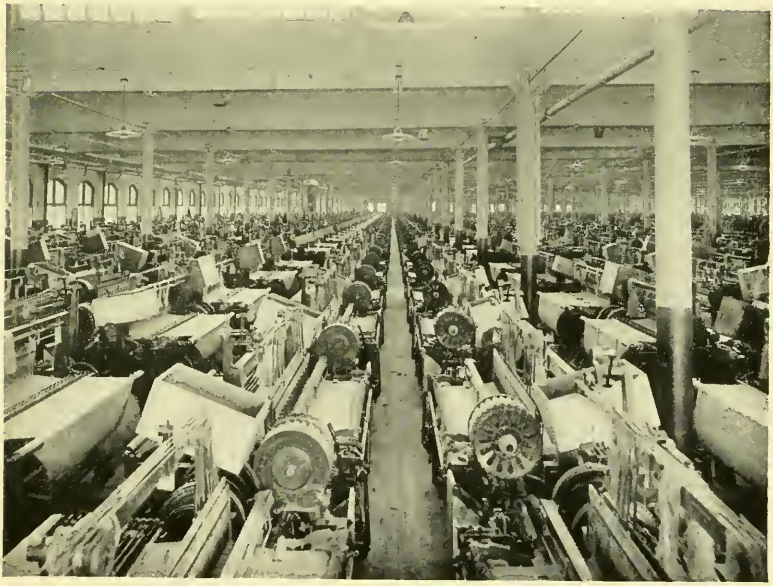
where they afforded inadequate protection; and it was not until the tariff act of 1890 that the American manufacturers (again represented by Mr. Whitman before Congressional Committees) were granted the rates needed to establish firmly in this country the manufacture of these fabrics.

The gradual introduction of the manufacture of ready-to-wear garments, both for women and men, has had a marked effect upon the wool manufacture, requiring as it did the making of fabrics in wider widths (now being made 50″, 54″, 56″, and sometimes 60″ wide, as compared with the earlier widths of 22″, 23″ and 27″) to avoid unnecessary losses in the cutting processes, and setting up rigid standards of quality by which all fabrics purchased are tested as to fibers used, construction, strength, and fastness of colors. This demand for fabrics of greater width caused the gradual displacement of the narrow and the installation of the wider looms, and gradually improved the quality of the fabrics required to meet such existing demands.

The above changes were all a part of a natural development of a great industry, and the Arlington Mills have kept pace with that development. From narrow, cotton-warp, worsted fabrics, sold in arbitrarily packed cases, their product has developed into one of wide, all-wool fabrics of a staple or semi-staple character, and grade for grade are surpassed by no other manufacturer.



A Spinning Room



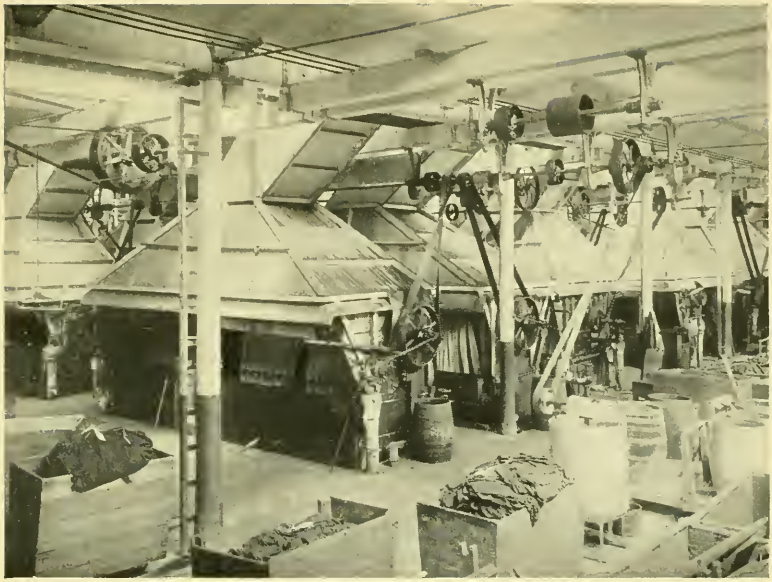
A Weave Room

During all this period the Arlington Mills fabrics had been confined to dress goods, but a large amount of worsted yarn was manufactured in addition to the requirements of its looms, and sold to other manufacturers — chiefly those of men's wear fancy fabrics, which up to that time had been a very large and prosperous business among the mills of this country. Owing to change of fashion and the growth of the demand for staple goods, and as a further natural development of its business, the Arlington Mills in 1910 began to manufacture staple and semi-staple worsted goods for men's wear, and gave up the sale of worsted yarns to other manufacturers. It was quite a change from the manufacture and sale of women's fabrics, and the lines at first were limited; but this branch of the business has grown year by year with an ever increasing range of fabrics now well known to the trade for their merit, and with an ever increasing clientele, until today the Arlington Mills are looked upon as second to none among the best manufacturers of high grade staple and semi-staple worsteds for men's wear. The manufacture of men's wear from the small beginning in 1910 has developed into the major part of the business of the Arlington Mills, and this growth has been attained by the same policy that the Arlington Mills have always followed in giving the trade goods properly constructed and of uniformity of manufacture.

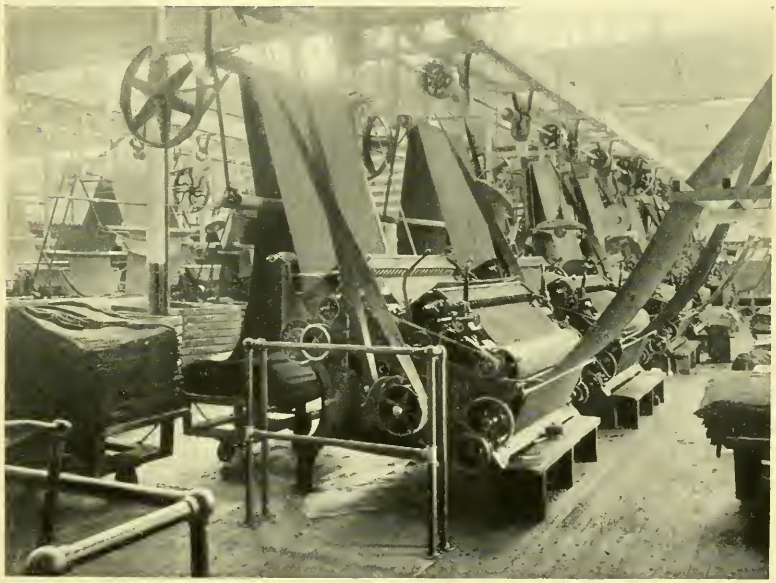
The historical outline of the Arlington Mills during the sixty years of their existence brings out the important fact that since 1869 the development has been in accordance with a single, well-conceived, progressive, far-sighted policy, strictly adhered to. A part of the story has been told of Mr. William Whitman's great personal services, covering fifty-eight years, not only to the Arlington Mills but to the worsted industry in America; but more should be added. He has always been recognized as the chief factor in the development of the Arlington Mills from a small concern with scant capital and poor equipment into one of the largest textile organizations in the world. His energy and foresight have enabled the Mills to anticipate the changes which have taken place in manufacturing, and to adapt their resources and methods to every emergency.

During Mr. Whitman's connection with the Arlington Mills, the capitalization grew from $150,000 to $12,000,000, and the number of employees increased from 300 to 7500. The early pianoforte-case factory of 1865 developed into an enormous industrial plant, with buildings which are among the finest examples of mill architecture in existence.

This remarkable evolution of the Arlington Mills measures the greater part of Mr. Whitman's life, and also the development of the American worsted industry, to which he has so largely contributed. His has been to a notable



Dye Kettles

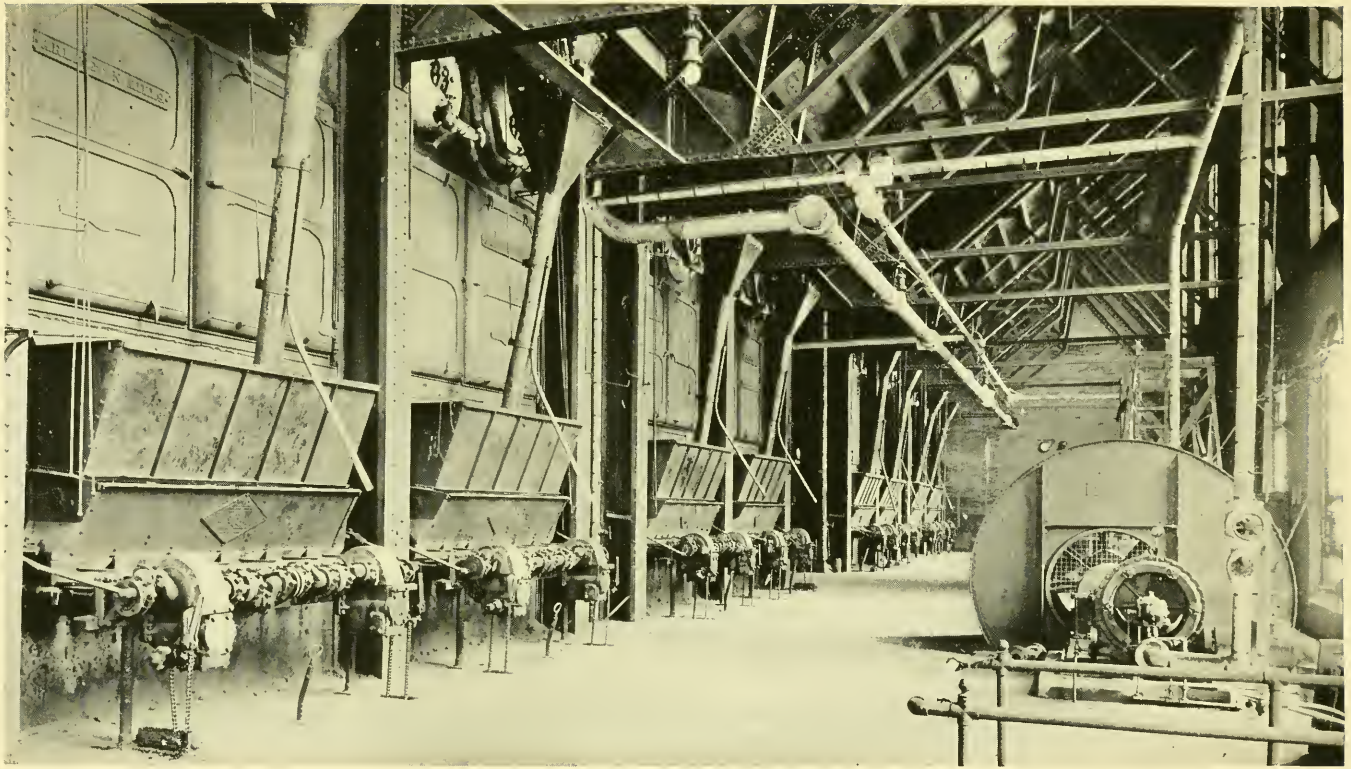


Shearing Machines

degree the work of a pioneer and creator, for much of the growth of the worsted industry has been in fields which were untouched when Mr. Whitman applied his ability and energy to the manufacture.

As Mr. Whitman has been gradually withdrawing from the direct management of the Mills, Mr. Franklin W. Hobbs has progressively assumed the responsibilities of Assistant Treasurer, Treasurer, and President. During the past thirty-four years Mr. Hobbs has been in closest contact with Mr. Whitman and in fullest harmony with the established policy of the business. This has enabled him to guide the destinies of the Arlington Mills with an understanding and knowledge which have given the Corporation the inestimable asset of that continuing and increasing momentum which can come only from an extended period of uninterrupted and determined constructive effort.

With such a record of growth no one can believe that the peak has even yet been reached. "Eternal vigilance is the price of success," and this eternal vigilance is never for a moment relaxed at the Arlington Mills. The present equipment appears today to approach perfection, the present processes seem to represent the acme of what human ingenuity can devise. But who possesses the temerity to suggest that the history of the past sixty years will not repeat itself!



SECTION OF BOILER HOUSE

Yearly coal consumption, 75,000 tons

APPENDIX

WOMEN WORKERS IN WOOL
XV CENTURY

ORGANIZATION

PRESIDENT

FRANKLIN W. HOBBS

78 Chauncy Street, Boston, Massachusetts

TREASURER

ALBERT H. CHAMBERLAIN

Lawrence, Massachusetts

DIRECTORS

Albert H. Chamberlain	James R. Hooper
Robert H. Gardiner	George E. Kunhardt
George L. Gilmore	Charles W. Leonard
Dudley N. Hartt	E. Kent Swift
Franklin W. Hobbs	William Whitman, Jr.
William Whitman	

CLERK OF THE CORPORATION

HARRY A. WRIGHT

TRANSFER AGENT

THE NEW ENGLAND TRUST COMPANY

135 Devonshire Street

BOSTON, MASSACHUSETTS

MILLS

LAWRENCE AND NORTH ADAMS

MASSACHUSETTS

MANUFACTURING AGENT

JOHN T. MERCER

SELLING AGENTS

WILLIAM WHITMAN COMPANY, *Inc.*

78 Chauncy Street

BOSTON

25 Madison Ave. — NEW YORK

300 Chestnut Street — PHILADELPHIA

Continental and Commercial Bank Building

CHICAGO

OFFICERS

from 1865 to 1925

PRESIDENTS:	FROM	TO
Robert M. Bailey	Feb. 16, 1865	Apr. 16, 1870
C. A. Lambard	Apr. 16, 1870	Jan. 31, 1871
Joseph Nickerson	Jan. 31, 1871	Feb. 29, 1880
Albert W. Nickerson	Apr. 28, 1880	May 17, 1893
George A. Nickerson	May 24, 1893	Sept. 2, 1901
Livingston Cushing	Sept. 2, 1901	Jan. 28, 1902
William Whitman	Jan. 28, 1902	Feb. 25, 1913
Franklin W. Hobbs	Feb. 25, 1913	
TREASURERS:		
Sumner Wheeler	Feb. 16, 1865	Apr. 10, 1867
William Whitman	Apr. 10, 1867	June 18, 1869
Benjamin L. Merrill	June 18, 1869	Dec. 9, 1869
William Whitman	Dec. 9, 1869	Jan. 28, 1902
Franklin W. Hobbs	Jan. 28, 1902	Feb. 25, 1913
Albert H. Chamberlain	Feb. 25, 1913	
ASSISTANT TREASURER:		
Franklin W. Hobbs	Jan. 29, 1895	Jan. 28, 1902
CLERKS:		
George L. Fall	Feb. 16, 1865	Nov. 1, 1869
Henry F. Spencer	Nov. 1, 1869	Mar. 12, 1870
George H. Stedman	Mar. 12, 1870	Feb. 12, 1878
George A. Nickerson	Feb. 12, 1878	Jan. 25, 1881
William P. Ellison	Jan. 25, 1881	Dec. 20, 1903
C. Eaton Pierce	Dec. 22, 1903	July 31, 1914
Harry A. Wright	July 31, 1914	Jan. 23, 1917
Albert Emerton	Jan. 23, 1917	Jan. 22, 1918
Harry A. Wright	Jan. 22, 1918	

DIRECTORS, from 1865 to 1925

[*The figures at the left of each Director's name indicates the order of succession*]

1.	Robert M. Bailey	Feb. 16, 1865	Jan. 31, 1871
2.	Charles A. Lambard	Feb. 16, 1865	Jan. 28, 1873
3.	Joseph Nickerson	Feb. 16, 1865	Feb. 29, 1880
4.	Benjamin L. Merrill	Jan. 29, 1867	Mar. 12, 1870
5.	George C. Bosson	Jan. 29, 1867	Mar. 4, 1874
4.	Albert W. Nickerson	Mar. 12, 1870	May 17, 1893
1.	Amos A. Lawrence	Jan. 31, 1871	July 13, 1876
2.	Amory A. Lawrence	Jan. 28, 1873	Aug. 2, 1873
2.	William Whitman	Aug. 2, 1873	
5.	Amory A. Lawrence	Mar. 4, 1874	Jan. 29, 1884
1.	Isaac T. Burr	July 13, 1876	Jan. 25, 1887
3.	George A. Nickerson	Apr. 28, 1880	Sept. 2, 1901
5.	Charles F. Fairbanks	Jan. 29, 1884	Jan. 25, 1887
5.	Francis A. Peters	Jan. 25, 1887	Jan. 29, 1889
1.	William A. Russell	Jan. 25, 1887	Jan. 10, 1899
5.	Charles C. Burr	Jan. 29, 1889	Sept. 23, 1900
6.	Frank E. Simpson	Jan. 27, 1891	Jan. 25, 1898
6.	William P. Ellison	Jan. 25, 1898	Jan. 30, 1900
1.	William H. Lincoln	Jan. 31, 1899	June 27, 1899
1.	Franklin W. Hobbs	Aug. 10, 1899	Jan. 30, 1900
6.	Livingston Cushing	Jan. 30, 1900	Nov. 25, 1916
1.	George E. Kunhardt	Jan. 30, 1900	
4.	William F. Draper	Jan. 29, 1901	Jan. 28, 1910
5.	Robert H. Gardiner	Jan. 29, 1901	June 15, 1924
3.	George E. Bullard	Jan. 28, 1902	Apr. 6, 1916
7.	William E. Cox	Jan. 28, 1902	Nov. 28, 1903
8.	Franklin W. Hobbs	Jan. 28, 1902	
9.	Charles W. Leonard	Jan. 28, 1902	
10.	William A. Russell	Jan. 28, 1902	June 7, 1906
11.	George M. Whitin	Jan. 28, 1902	Jan. 27, 1920
7.	James R. Hooper	Jan. 26, 1904	
10.	Richard S. Russell	June 22, 1906	Jan. 15, 1918
4.	William K. Richardson	Feb. 28, 1911	Jan. 27, 1925
6.	Dudley N. Hartt	Jan. 30, 1917	
3.	Albert H. Chamberlain	Jan. 30, 1917	
10.	William Whitman, Jr.	Jan. 29, 1918	
11.	E. Kent Swift	Jan. 27, 1920	
5.	Robert H. Gardiner	Oct. 21, 1924	
4.	George L. Gilmore	Jan. 27, 1925	

CAPITALIZATION

DATES OF AUTHORIZATION	CAPITAL STOCK AUTHORIZED	CASH PAID ON STOCK AS ISSUED	STOCK DIVIDENDS
Feb. 26, 1865	$ 150,000	$ 150,000	
*May 4, 1866	200,000	50,000	
**Jan. 27, 1868	240,000	†80,000	
1869	240,000	††240,000	
*Dec. 3, 1877	500,000	260,000	
*June 1, 1880	750,000	250,000	
*Sept. 4, 1882	1,000,000	250,000	
**Feb. 8, 1887	1,500,000	500,000	
**Feb. 12, 1890	2,000,000	500,000	
**Mar. 18, 1896	2,500,000	500,000	
*Jan. 28, 1902	3,000,000	500,000	
*May 9, 1905	5,000,000	1,000,000	1,000,000
*Mar. 15, 1907	6,000,000	1,000,000	
*Apr. 7, 1909	8,000,000	2,000,000	
*Apr. 14, 1920	12,000,000		4,000,000
Cash paid in		$ 7,280,000	
Cash paid in a second time to cover losses		280,000	
Net Cash Capital paid in		$ 7,000,000	
Earnings Capitalized		5,000,000	
		$12,000,000	

* Increases by authority of General Statutes.

** Increases by authority of Special Statutes.

† $200,000 Capital Stock reduced $40,000 and $80,000 New Stock Issued.

†† $240,000 Capital Stock wiped out and full amount paid in cash again.

SELLING AGENTS

R. M. Bailey & Co. 184 Devonshire St., Boston.	*Feb.* 18, 1865 — *Mar.* 22, 1869
John S. & Eben Wright & Co. 140 Devonshire St., Boston.	*Mar.* 22, 1869 — *July* 1, 1869
R. M. Bailey & Co. 184 Devonshire St., Boston.	*July* 1, 1869 — *Dec.* 21, 1869
Lawrence & Co. 13 Chauncy St. until 1883, then 68 Chauncy St., Boston.	*Dec.* 21, 1869 — *Mar.* 7, 1883
Brown, Wood & Kingman 31 Bedford St., Boston.	*Mar.* 7, 1883 — *Oct.* 27, 1887
Harding, Colby & Co. 202 Devonshire St., Boston.	*Oct.* 27, 1887 — *Dec.* 31, 1889
Harding, Whitman & Co. 202 Devonshire St., Boston until 1890, then 78 Chauncy St., Boston	*Jan.* 1, 1890 — *June* 30, 1909
William Whitman & Co. 78 Chauncy St., Boston.	*July* 1, 1909 — Dec. 2, 1913
William Whitman Company, Inc. 78 Chauncy St., Boston.	*Dec.* 2, 1913

SERVICE PINS

Employees who have served the Arlington Mills twenty years or more

NAME	ENTERED EMPLOY	OCCUPATION
	FIFTY YEARS AND OVER	
William Whitman	(1867–1869)	*Director and*
	(1869–	*Selling House*
Charles Wainwright	1870	*Paymaster (Retired)*
	45–50 YEARS	
Thomas Riley	1875	*Overseer*
William Jackson	1879	*Section Hand*
Joseph Tardie	1880	*Section Hand*
	40–45 YEARS	
William J. Day	1880	*Machinist*
Henry Malaney	1881	*Waste Cutter*
James Dunleavey	1881	*Section Hand*
Lizzie Jenkins	1882	*Clerk*
Samuel Taylor	1882	*Filter Gal. Tend.*
Alfred Armitage	1883	*Machinist*
George Aspinwall	1883	*Waste Man*
Alfred Kershaw	1883	*Machinist*
Mary Callahan	1884	*Spinner*
Herman Singer	1884	*Warp Repairer*
Jessie Bamford	1884	*Engineer*
Joseph H. Bailey	1884	*Overseer*
John Leach	1884	*Shipper*
Nellie Hennessey	1884	*Gillbox Hand*
John Maney	1884	*Elevator Man*
	35–40 YEARS	
John C. Ellis	1885	*Scotch Warper*
Robert Taylor	1885	*Machinist*
James Butler	1885	*Second Hand*
Timothy Clark	1885	*Top Deliverer*
Maurice Murphy	1885	*Can Dryer*
Christie Barry	1885	*Spooler*

35–40 YEARS (Continued)

George Boddy	1886	*Scrubber*
John Lena	1886	*Weaver*
John F. Welch	1886	*Piper*
James Green	1886	*Piper*
Edgar Bryant	1886	*Overseer*
Walter Booth	1887	*Shader*
Miles Priestman	1887	*Overseer*
Alfred Hill	1887	*Engineer*
Horace Hoffman	1887	*Asst. Foreman*
William McElroy	1887	*Helper*
James A. Macdonald	1887	*Supt.*
Paul Gaudlitz	1888	*Section Hand*
Mary Mulreaney	1888	*Rover*
James E. Barnes	1888	*Sorter*
John Drohan	1889	*Top Weigher*
Esther Farr	1889	*Clerk*

30–35 YEARS

Christopher Dover	1890	*Gen'l Overseer*
Kate Minahan	1890	*Spinner*
Emile Dietrich	1890	*Warp Rep.*
Richard Leach	1890	*Overseer*
William W. Sheldon	1890	*Sorter*
Silas Thomas	1890	*Overseer*
John Warburton	1890	*Overseer*
Franklin W. Hobbs	1891	*President*
George Smith	1891	*Supply Hand*
Edward Howell	1891	*Waste Cutter*
Joseph H. Fitch	1891	*Civil Eng.*
James Bilney	1891	*Sorter*
Miles Foster	1891	*Overlooker*
Olive Lawton	1891	*Drawer*
Edgar S. Woodburn	1891	*Overseer*
Ellen Keating	1892	*Weaver*
Albert Leach	1892	*Percher*
Allen Pyrah	1892	*Overseer*
Fred Hillis	1892	*Tele. Oper.*
Francis J. Richards	1892	*Sorter*
Peter Walsh	1892	*Waste Man*
Emil Ritter	1892	*Watchman*
Frank Sugden	1892	*Supt.*

30–35 YEARS (Continued)

William H. Furneaux	1892	*Section Hand*
Edward Moore	1892	*Section Hand*
Nellie Sullivan	1893	*Section Girl*
Herbert Thorlby	1893	*Watchman*
Mary Murphy	1893	*Weaver*
Fred Hoyle	1893	*Overseer*
George Langley	1893	*Electrician*
Joseph Tennant	1893	*Filling Cell. Hand*
John Howlett	1894	*Twister*
Samuel Lawton	1894	*Reed Fixer*
Maggie Kane	1894	*Yarn Inspector*
Margaret McCartney	1894	*Waste Cutter*
Stephen Sheldon	1894	*Sorter*
Abel Hill	1894	*Engineer*
Mary Doyle	1894	*Weaver*
William Beecroft	1894	*Overseer*
Frank Harding	1894	*Asst. Supt.*
George Haycock	1894	*Overseer*
Alfred Labonte	1895	*Wool Washer*

25–30 YEARS

Paul Galle	1895	*Machinist*
Arthur Kemp	1895	*Clerk*
Jerry Madden	1895	*Asst. Sect. Hand*
Bernard McCabe	1895	*Repair Man*
Christopher Wilson	1896	*Distiller*
Thomas Carter	1896	*Machinist*
Richard Quance	1896	*Sorter*
Alfred Hodge	1896	*Overseer*
Michael Ryan	1896	*Grease Shipper*
Thomas Walsh	1896	*Section Hand*
Thomas Coskren	1897	*Overseer*
Frank W. Haycock	1897	*Overseer*
C. Clifford Chadwick	1897	*Trans. Mgr.*
John Moody, Sr.	1897	*Floor Hand*
James Morgan	1897	*Sorter*
Ida Mack	1897	*Clerk*
John Sullivan	1897	*Wool Receiver*
Fred Hyde	1897	*Motor Tender*
Arthur E. Bagshaw	1897	*Overseer*
John Barraclough	1897	*Foreman*

25–30 YEARS (Continued)

Patrick Burke	1897	*Piper*
Wilfred Potvin	1897	*Electrician*
Joseph Carroll	1897	*Asst. Sect. Hand*
Linneas Haggas	1898	*Clerk*
Michael J. Sheridan	1898	*Overseer*
James Murphy	1898	*Shipping Clerk*
Annie McMahon	1898	*Weaver*
Henry R. Parthum	1898	*Foreman*
Robert Hamilton	1898	*Weaver*
Emma Raw	1898	*Examiner*
Ellen Hannon	1898	*Gillbox Hand*
Samuel Hartley	1899	*Cleaner*
Esther Lowry	1899	*Waste Cutter*
Ida Worsley	1899	*Clerk*
Warren E. Dearden	1899	*Overseer*
Margaret Bodenrader	1899	*Reeler*
John A. Collins	1899	*Asst. Mast. Mec.*
James Connors	1899	*Second Hand*
John W. Buckley	1899	*Feeder*
Annie Coleman	1899	*Rover*
Michael Shannahan	1899	*Sorter*
Alice M. Hyatt	1899	*Clerk*
Edward E. Davies	1899	*Sorter*
George Higginbotham	1899	*Oiler*
Michael Quinlan	1899	*Section Hand*
Martin Baker	1900	*Piper*

20–25 YEARS

John T. Mercer	1900	*Agent*
Herbert E. Gordon	1900	*Clerk*
John E. Peever	1900	*Section Hand*
John E. Hague	1900	*Watchman*
Francis Knapton	1901	*Warp Repairer*
Frank Malaney	1901	*Section Hand*
Charles H. Broadbent	1901	*Clerk*
Kate Dube	1901	*Weaver*
Thomas Kinsella	1901	*Machinist*
Frank Hancock	1901	*Soap Boiler*
Nora Kittredge	1901	*Specker*
Joseph Guthrie	1901	*Second Hand*
Carrie Cleveland	1902	*Weaver*

20–25 YEARS (Continued)

Kate Glavin	1902	*Waste Cutter*
John Enright	1902	*Engineer*
Emma Donery	1902	*Weaver*
William Gebo	1902	*Oiler*
Myrtie Cleveland	1902	*Weaver*
Nelson Gebo	1902	*Machinist*
Henry Lever	1902	*Machine Rep.*
James Missett	1902	*Second Hand*
William Robinson	1902	*Piper*
Elizabeth Moreland	1902	*Specker*
John Hartley	1902	*Top Packer*
Harry A. Wright	1902	*Clerk of Corp.*
Alice E. Burnham	1902	*Clerk*
Margaret Hamilton	1903	*Clerk*
Adolphus Enright	1903	*Fireman*
James Houlihan	1903	*Foreman*
James Gilrane	1903	*Section Hand*
John Griffin	1903	*Second Hand*
William Hutchinson	1903	*Foreman*
John Anderson	1903	*Supt.*
Fred Spencer	1903	*Overseer*
Maggie Fyfe	1903	*Winder*
Michael Coleman	1903	*Grease Shipper*
Sam Lloyd	1904	*Second Hand*
George F. Brooks	1904	*Top Tester*
John W. Campling	1904	*Sorter*
John McCabe	1904	*Fireman*
Patrick Rose	1904	*Wool Receiver*
Roselind Howker	1904	*Stenographer*
Harry Edwards	1904	*Examiner*
Hannah McGurran	1904	*Drawer*
Seth Lambert	1904	*Section Hand*
Augusta Richter	1904	*Spooler*
Walter Winward	1904	*Engineer*
Andrew Mitchell	1904	*Mason*
James Mitchell	1905	*Section Hand*

INSURANCE

Period of continuous service

		AMOUNT OF INSURANCE
In service	1 yr. but less than 1 yr. 6 mos.	$ 750.
" "	1 yr. 6 mos. but less than 2 yrs.	850.
" "	2 yrs. but less than 2 yrs. 6 mos.	950.
" "	2 yrs. 6 mos. but less than 3 yrs.	1050.
" "	3 yrs. but less than 3 yrs. 6 mos.	1150.
" "	3 yrs. 6 mos. but less than 4 yrs.	1250.
" "	4 yrs. but less than 4 yrs. 6 mos.	1350.
" "	4 yrs. 6 mos. but less than 5 yrs.	1450.
" "	5 yrs. and over . . . . . Maximum	1500.

ARLINGTON MILLS PRODUCTS

MEN'S WEAR

for

CLOTHING MANUFACTURERS

All wool serges, 10 to 18 oz.
Piece dyes, mixtures, vigoureux, clear and unfinished.
Cheviots, 12 to 16 oz. Piece dyes and mixtures.
Fancy weave suitings, 10 to 18 oz. Piece dyes, mixtures, vigoureux, clear and unfinished.
Fancy suitings with silk or mercerized decorations, 10 to 16 oz.
Tropicals, plain and decorated.
Piece dyes, mixtures, vigoureux, $7\frac{3}{4}$ to $9\frac{1}{2}$ oz.
Gabardines and whipcords for topcoats, uniforms, and raincoats.
Tropical coverts, plain and decorated.

RAINCOAT AND TOPCOAT MANUFACTURERS

Gabardines, 11 to 14 oz. — Whipcords for topcoats

WOOLEN JOBBERS

High grade serges, fancy weaves and silk decorated, clear and unfinished
Plain mixtures, vigoureux, sharkskin, dress suitings
Tropicals, gabardines

TAILORS TO THE TRADE

A complete line of serges, fancy weaves, silk decorated.
Plain, mixture and vigoureux, clear and unfinished
Cheviots, tropicals, coverts and gabardines

PANT MANUFACTURERS

Plain, fancy weave and decorated serges in comprehensive line of weights, colors and patterns

RUBBER TRADE

Cashmeres in standard colors for rubberizing purposes

ARLINGTON MILLS PRODUCTS

WOMEN'S WEAR

for

CLOAK AND SUIT MANUFACTURERS

All wool storm and French serges, cheviots, Poiret twills, gabardines, prunellas, fancy suitings, repps and shepherd checks

DRESS MANUFACTURERS

All wool *Kashmir*, Poiret twills, gabardines, prunellas, crêpes, repps and serges

CHILDREN'S CLOTHING MANUFACTURERS

All wool and cotton warp serges, cheviots and fancy suitings

DRY GOODS JOBBERS

All wool and cotton warp storm and French serges, cheviots, *Kashmir*, crêpes, repps, shepherd checks, fancy suitings, gabardines, Poiret twills and prunellas

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The Arlington Mills make a specialty of carrying out the special ideas of the trades to which they cater, and also are ready and willing to carry out the special ideas of other trades where worsted goods can be used in quantity

ARLINGTON MILLS PRODUCTS

WOOL COMBING ON COMMISSION

The experience and unusual facilities of the Arlington Mills, possible only in a large establishment, are placed at the service of the wool trade and manufacturers throughout the country, who send their wool to the Mills to be combed on commission.

Such wool is sorted, cleansed by the Solvent Process, carded, and combed with the same scrupulous care, high efficiency, and economy that characterize all work done by the Arlington Mills.

GENERAL INFORMATION

		LAWRENCE	NO. ADAMS	TOTAL
Area of Land for Manufacturing	Acres	56.0	14.0	70.0
Floor Area	Acres	54.3	3.3	57.6
Power Used — Generated by Mill	H.P.	31,000		
Power Used — Electricity Bought	H.P.		750	31,750
Number of Employees		7,005	263	7,268
Pounds of Wool Combed Annually		75,000,000		75,000,000
Pounds of Tops made Weekly		550,000		550,000
Pounds of Yarn made Weekly		200,000		200,000
Yards of Cloth Woven Weekly		321,500	68,500	390,000
Number of Combs		182		182
Number of Worsted Spindles		131,744		131,744
Number of Looms		2,588	236	2,824

INDEX

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